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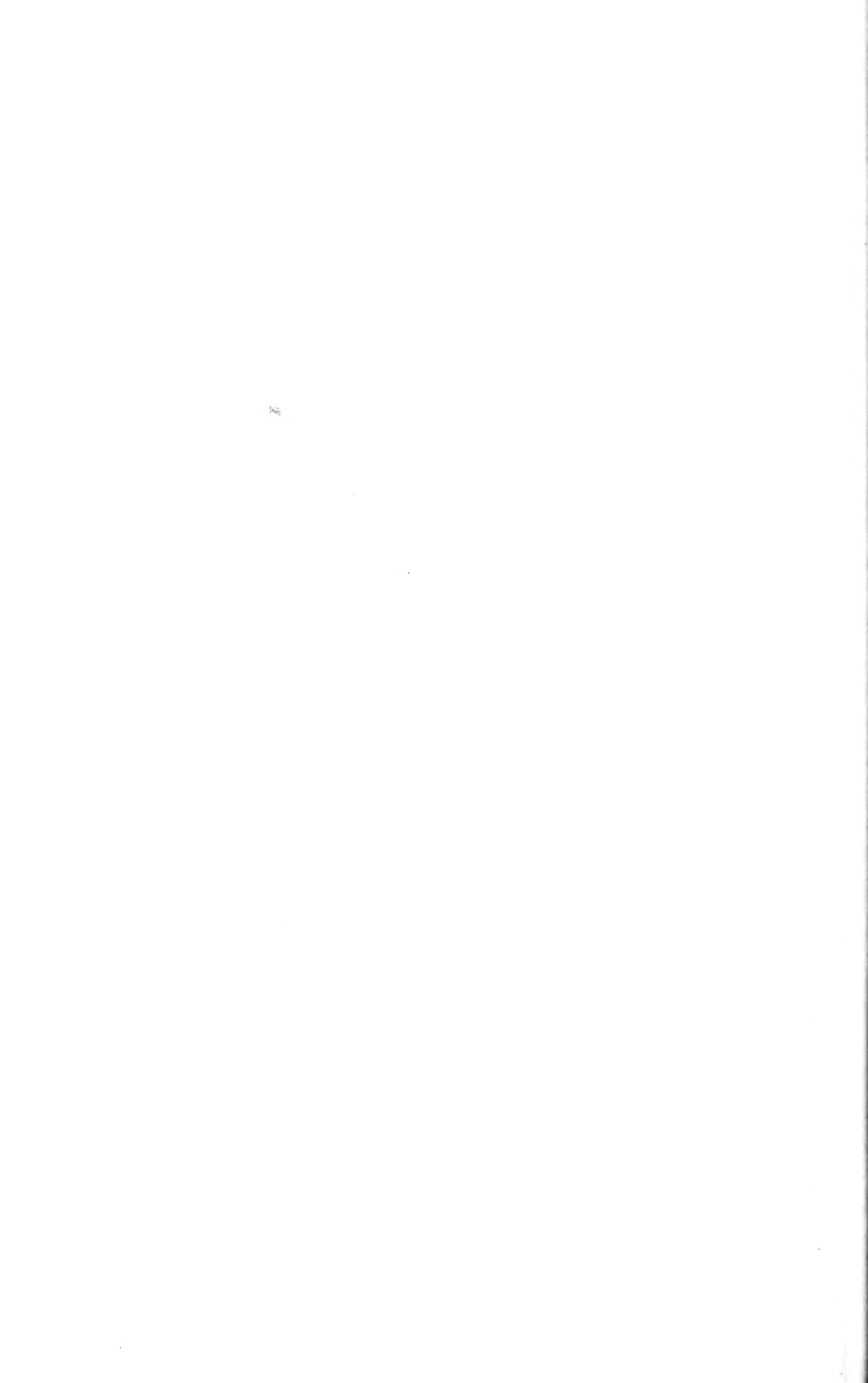
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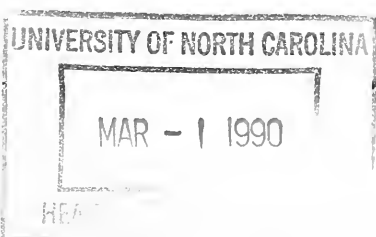
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THE CAROLINA
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Constitution and Bylaws
and

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THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

JANUARY 1990

VOLUME 70

NUMBER 1

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ISSN 0528-1725

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The *Carolina Journal of Pharmacy* is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPhA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.

**CONSTITUTION AND BYLAWS OF THE
NORTH CAROLINA PHARMACEUTICAL ASSOCIATION**

CONSTITUTION

Article I - Name

This Association shall be called "The North Carolina Pharmaceutical Association," with an office at the Institute of Pharmacy, Chapel Hill, N.C. 27516.

Article II - Purpose and Objectives

Section 1. Purpose: The purpose of this Association shall be to protect the public health and welfare by uniting North Carolina pharmacists for the advancement of their profession.

Section 2. Objectives: The objectives of this Association shall be;

- (1) To improve the science and art of pharmacy and to elevate its standards.
- (2) To promote the safe, effective and rational use of medications, therapeutic agents and medical devices issued or dispensed by pharmacists for the prevention of illness, treatment of a medical condition or maintenance of health.
- (3) To encourage and promote the research and study of problems related to the practice of pharmacy.
- (4) To interest competent individuals in the practice of pharmacy as a career.
- (5) To promote pharmaceutical education and professional growth as a means of providing the greatest protection for the public at large.
- (6) To encourage the study of pharmacy through scholarships.
- (7) To provide services to members of the Association.
- (8) To secure and distribute to members of the Association information relevant to the practice of pharmacy.
- (9) To adopt and enforce a Code of Professional Ethics that will assure the public of high standards of professional practice.
- (10) To assist members of the Association in achieving economic, educational, governmental, and professional goals.
- (11) To promote and encourage goodwill and respect between pharmacists and other health professionals.

Article III - Code of Professional Ethics

Section 1. Code of Professional Ethics: The Association shall adopt a Code of Professional Ethics, the purpose of which is to elevate the standards of the professional practice of pharmacy and serve as a guide for the conduct and application of professional judgment by pharmacy practitioners. All applicants for active membership shall subscribe to the Association's Code of Professional Ethics and continue to do so upon renewal of membership.

Section 2. Ethics, Grievance and Practice Committee: The Ethics, Grievance and Practice Committee is the judicial division of the Association and shall be composed of five members, one of whom shall be the current second vice president of the Association. The first year, the president of the Association shall appoint four committee members and shall designate one, two, three or four year terms of office respectively. Thereafter, one new member shall be appointed by the president annually for a four-year term. The executive director of the Association shall serve as ex officio member of the Committee. It shall be the primary responsibility of the Ethics, Grievance and Practice Committee to develop written criteria for membership, and interpret and enforce the Association's Code of Professional Ethics according to the provisions of the Bylaws and procedures duly adopted by the Committee. The Committee shall also serve to advance the practice standards of the profession of pharmacy.

(Modification of Section 2 was proposed at the 1987 Annual Convention and adopted at the 1988 Annual Convention, May 21, 1988, Asheville North Carolina)

Section 3. Procedures, Penalties and Appeal: An active member may be reprimanded, suspended or expelled from membership for violation of the obligations of the Code of Professional Ethics. An active member against whom a complaint for violation of the Code of Professional Ethics has been received shall be provided written notice of the charges and an opportunity for a judicial review or hearing by the Ethics, Grievance and Practice Committee according to established due process procedures. All decisions of the Ethics, Grievance and Practice Committee shall be final unless appealed to the Executive Committee within sixty (60) days from the date on which the member received notification of the decision by the Ethics, Grievance and Practice Committee. The majority decision of the Executive Committee of cases on appeal shall be final and binding.

Article IV - Membership

This Association shall consist of Active, Life, Student, and Honorary Members.

Section 1. Active Members: An active member is a pharmacist licensed to practice pharmacy under the pharmacy laws of this state or a graduate of an accredited School of Pharmacy who has paid the annual dues and satisfies written criteria developed by the Ethics, Grievance and Practice Committee.

Section 2. Life Members: A life member is an active member who has paid ten times the amount of the annual dues or who has been voted into Life Membership by the Executive Committee.

Continued on page 7

IT PAYS TO STUDY YOUR OPTIONS



Graduate Studies Scholarship Program

Career opportunities in the pharmaceutical industry encompass a broad range of disciplines. To encourage pharmacy students to pursue graduate level studies in areas which may lead to pharmaceutical careers, Glaxo has joined with the American Association of Colleges of Pharmacy and the American Foundation for Pharmaceutical Education to establish the Glaxo Graduate Studies Scholarship Program.

The program will award \$5,000 scholarships to eight gradu-

ating pharmacy students who plan to continue their studies in graduate school. Eligible graduate programs may include such diverse areas as management, engineering, pharmaceutical sciences, marketing and law.

Scholarship applications may be obtained by writing to: Glaxo Graduate Studies Scholarship Program, AACP, 1426 Prince Street, Alexandria, Virginia 22314.

Entries must be received by May 1 of each year.

Glaxo

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Section 3. Student Members: A student enrolled in a School of Pharmacy within this state is eligible for membership as a student member of the North Carolina Pharmaceutical Association at the annual membership fee established by the Executive Committee of this Association. A student member is not eligible to vote or hold office in the Association, but is entitled to all other rights of membership.

Section 4. Honorary Members: Any person who has achieved exemplary distinction in or for pharmacy or the health sciences may upon nomination by the Executive Committee be elected an honorary member. Honorary members shall not have the right to vote or hold office in the Association but may attend meetings of the Association. They shall be exempt from payment of annual dues.

Article V - Officers

The Association shall have the following officers: a President; a First Vice-President who shall be President Elect; a Second Vice-President; a Third Vice-President; and an Executive Director.

Section 1. Election Process: The three Vice-Presidents shall be elected annually by mail ballot and shall hold office until their successors are elected and installed. The First Vice-President (President-Elect) shall automatically assume the office of President without being subject to further election.

Article VI - Amending the Constitution

Every proposition to alter or amend this Constitution shall be submitted in writing to the Constitution and Bylaws Committee and, if accepted, referred to the Executive Committee who shall submit it in writing at an annual meeting. It shall be acted upon at the next annual meeting when upon receiving a vote of three-fourths of the members present, it shall become a part of the Constitution of the North Carolina Pharmaceutical Association.

BYLAWS

Article I - Election of Officers

Section 1. A Nominating Committee of seven members shall be annually chosen by the President, and charged with the duty of selecting candidates for the offices of first, second and third vice president, and three members-at-large of the Executive Committee of the North Carolina Pharmaceutical Association; and four Directors of the Pharmacy Foundation of North Carolina, Inc.

Section 2. The Nominating Committee shall submit at the last session of each annual meeting for approval a slate of two or more candidates together with written biographical sketches for each of the offices of First Vice President (President Elect), Second Vice President and Third Vice President; six members for three places as members-at-large of the Executive Committee; and eight or more members as candidates for four directorships of the Pharmacy Foundation of North Carolina, Incorporated. Additional nominations with written biographical sketches can be made from the floor.

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Section 3. The candidates so nominated shall be residents of North Carolina and their names shall be mailed within one month by the Executive Director to every member of the Association, together with the request that the members indicate their preference on a ballot enclosed for that purpose, and return the same by mail within one month.

The ballots received as indicated in the preceding paragraph are to be sent to an "Election Committee" in care of the Executive Director, Chapel Hill. The Election Committee shall consist of four members selected by the Executive Committee of the North Carolina Pharmaceutical Association for a term of three years. The Election Committee shall count as votes in the annual election only those ballots received from members whose dues have been paid for the current year. The Election Committee shall certify to the Executive Director the results of the tally after which the latter shall be published.

The Executive Director shall notify all candidates of the time and place of the meeting of the Election Committee and extend a written invitation to attend the counting of the ballots.

Section 4. The officers thus elected by a plurality of the votes shall be installed at the final session of the next annual meeting.

Section 5. Elected officers must be residents of North Carolina while serving their terms of office. This section shall not apply to officers elected but not installed for the 1985-1986 Association year.

Article II - Duties of Officers

Section 1. THE PRESIDENT

The President shall:

- (1) Preside at all meetings of the Association;
- (2) Enforce the Constitution and Bylaws and parliamentary procedure in accordance with Robert's Revised Rules of Order;
- (3) Appoint all committees not otherwise provided for or ordered by the Association;
- (4) Be an ex officio member of all committees and delegations;
- (5) Fill by appointment all committee and office vacancies brought about by death or inability to serve except as otherwise provided in the Bylaws;
- (6) Be Chairman of the Executive Committee;
- (7) Call special meetings at the written request of ten percent of the active members;
- (8) Have the authority to employ the appropriate individuals to aid in conducting the affairs of the Association;

(10) Discharge such other duties as the Executive Committee shall assign or designate.

The Executive Director shall be bonded in an amount required by law and approved by the Executive Committee, said bond to be paid by the Association. His performance and compensation shall be reviewed annually by the Executive Committee. A certified public accountant shall be engaged to audit the financial accounts of the Association and report to the Executive Committee.

Article III - Committees

Section 1. Standing Committees: There shall be five (5) committees of the Association:

- (1) Executive Committee
- (2) Legislative Committee
- (3) Nominating Committee
- (4) Resolutions Committee
- (5) Ethics, Grievance and Practice Committee

Section 2. Composition and Responsibilities: The composition and responsibilities of the standing committees shall be as follows:

(1) Executive Committee - The Executive Committee shall consist of the President, First Vice-President, Second Vice-President, Third Vice-President, Executive Director, three (3) Immediate Past Presidents, each serving a three-year term, and three (3) members-at-large elected annually.

The duties of the Executive Committee shall be as follows:

- A. Take into consideration and act upon all matters of business between annual meetings.
- B. Approve bonds sufficient to meet all legal requirements of the organization.
- C. Select depositories in which funds and securities of the Association are deposited.
- D. Direct the investment of funds of the Association.
- E. Contract for and make necessary arrangements for editing and publishing the Carolina Journal of Pharmacy and other publications as the Association may direct.

Continued on page 11

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under medical supervision.*



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In Diabetes Care

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F. Employ the Executive Director and annually review performance and compensation.

G. Act on appeals from members emanating from decisions of the Ethics, Grievance and Practice Committee wherein sanctions are imposed for violation of the Code of Professional Ethics of the Association.

H. Have general charge and final authority over all affairs of the Association which are not specifically provided in the Bylaws.

I. Perform other functions necessary for the efficient operation of the Association.

(2) Legislative Committee - The Legislative Committee shall consist of seven (7) members appointed by the President. Non-voting advisory members may be appointed by the President as deemed necessary.

The duties of the Legislative Committee shall be as follows:

A. Use its efforts in sponsoring the passage of such legislation as the Association may specifically recommend.

B. Oppose such legislation as the Association resolves to oppose.

C. Between annual meetings of the Association, if anticipated legislative developments occur, the Legislative Committee shall ask for a called meeting of the Executive Committee in order that the latter committee may act officially for the Association in advising, approving or opposing such measures or methods as the Legislative Committee may present.

D. Review and evaluate all legislative/regulatory proposals affecting the profession of pharmacy.

E. Submit a report to the Association at the annual meeting by the Chairman of the Legislative Committee or his appointed representative.

(3) Nominating Committee - The Nominating Committee composition and functions are described in Article I, Section 2, Bylaws.

(4) Resolutions Committee - The Resolutions Committee shall consist of five (5) members appointed by the President.

The duties of the Resolutions Committee shall be as follows:

A. Ensure that resolutions, position papers, and similar proposals which seek to establish Association policy or action are made appropriate and ready for consideration by the Association.

B. Receive resolutions from Association members for study and action at annual meetings. Resolutions must be in writing and presented no later than the

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first day of the annual meeting if the meeting is scheduled for more than one day and no later than noon if the meeting is scheduled for one day only. The Committee shall not process proposals submitted from the floor as new business.

C. Act on all proposals submitted to it and decide on matters on which the Association should take a public stand.

The functions of the Resolutions Committee shall include:

A. Returning to the originators with appropriate explanations those proposals which lack clarity or are duplications, nonsubstantive, poorly formulated or inconsistent with the Association's Constitution and Bylaws.

B. Referring to proper units or officials of the Association those proposals appropriate for their action or for preliminary processing or study prior to submission to the Association.

C. Clarifying, consolidating, and coordinating those proposals wherein potential confusion or duplication exists.

D. Presenting to the Association with recommendations for disposition those proposals which are appropriate to and ready for action by the Association.

E. Reporting to the originator the disposition of any proposal which is not presented to the Association for action.

The Committee shall establish guidelines for submission of proposed actions, policies, or organizational positions and establish timetables for consideration of such proposals. The guidelines and timetables, after approval by the Executive Committee, should be made known to all members of the Association at least six months in advance of the annual meeting.

The Committee will consider only resolutions and policy statements of a substantive nature affecting Association policy or pharmaceutical education and practice submitted at the annual meeting of the Association from various sources and will process them according to the above five functions. It is the responsibilities of the committees and groups preparing statements on policy to notify the Committee of proposed non-urgent policy requests well in advance of the annual meeting. In the absence of action by the Committee, the proposals shall be forwarded to the Executive Committee.

(5) Ethics, Grievance and Practice Committee - The Ethics, Grievance and Practice Committee composition and functions are described in Article III, Section 2 of the Constitution.

Section 3. Appointive Committees: The President shall appoint the following committees to be assigned applicable powers and duties, consistent with the Association's Constitution and Bylaws:

- (1) Continuing Education
- (2) Endowment/Consolidated Pharmacy Loan Fund
- (3) Mental Health

- (4) Public and Professional Relations
- (5) Public Health
- (6) Social and Economic Relations
- (7) Third Party
- (8) Time and Place
- (9) Constitution and Bylaws

Other committees may be appointed by the President to perform such special duties as may be assigned by the President and/or the Executive Committee.

Section 4. Term: The term for each member of any committee shall be one year, with the term ending at the close of the annual meeting following appointment. Except for the ex-officio member of the committee, a member shall not serve on any committee for more than four (4) consecutive years or more than three (3) committees concurrently.

Section 5. Vacancies: Vacancies on any committee may be filled for the unexpired portion of the term in the same manner as provided in the case of original appointments.

Section 6. Powers and Duties: Committees created under the provisions of these Bylaws shall have such powers and duties as are specifically given to them from time to time by the Executive Committee. Each Committee may conduct hearings, perform studies, and make reports exclusively to the Executive Committee as deemed necessary by the Committee, provided, however, all such Committee activity shall be in accordance with the objectives of the Association as defined in the Articles of Incorporation, in these Bylaws, or by the Executive Committee.

Reports of the Committees shall be submitted to the Executive Committee, and shall not be binding on the Association or the Executive Committee. The Committees shall submit such reports on such dates as may be specified by the Executive Committee, and where action by the Executive Committee is requested or required, such reports shall be forwarded to members of the Executive Committee not later than ten (10) days prior to the Executive Committee meeting at which action is to be taken. The ten (10) day report submission requirement may be waived by a two-thirds (2/3) majority vote of the Executive Committee.

Section 7. Quorum: A majority of the members of the Committee shall constitute a quorum and the act of a majority of the members present at any meeting at which a quorum is present shall be the action of the Committee. In the absence of a quorum, those members present can develop recommendations for the Executive Committee's consideration, provided the recommendations are presented to the Executive Committee with a statement identifying who was present and that the recommendations were developed at a meeting without a quorum present.

Section 8. Rules and Procedure: Each committee may adopt rules and procedures for its own governance which are not inconsistent with law, these Bylaws, the Articles of Incorporation, and any restrictions or other actions by the Executive Committee.

Section 9. Meetings: Committees shall meet from time to time on call of the President or of the Committee Chairman. At least seventy-two (72) hours confirmed notice shall be given to all committee members by the person calling the meeting, or by the Executive Director.

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Section 10. Waiver of Notice: The transaction of a meeting, (whether regular or special) shall not be invalid merely because a required notice was not given, as long as a quorum was present at said meeting and the absent members signed a written waiver of notice or gave their written consent to any action taken at such meeting, eitherbefore or after the meeting. Appearance at any such meeting for any reason other than to contest notice shall also constitute waiver of the required notice provisions.

Section 11. Expulsion: Committee members who miss more than two (2) consecutive or any three (3) meetings of a Committee without reasonable cause and prior notification to the committee chairman or the Executive Director shall be expelled. Absences shall be explained in writing within thirty (30) days to the Executive Director.

Article IV - Academies

Section 1. Establishment of Academies: Any group of 30 or more active members may petition the Executive Committee to form an academy within the organizational structure of the North Carolina Pharmaceutical Association. Such a petition must be based upon a demonstrated need and represent an identifiable and distinct field of practice that calls for special skill and knowledge. All academies shall be established on a statewide basis and membership therein shall be open to all active members.

Section 2. Structure: Each Academy shall have as officers a President, Vice-President, and Secretary. Each academy shall also have a Board of Directors of four active members of the academy.

Section 3. Purpose and Function of Academies: Academies shall have as their basic purpose the establishment and elevation of practice standards within a given practice area. Specific functions of North Carolina Pharmaceutical Association academies are to include educational, professional, governmental and economic affairs related to a specific practice area. Academies shall have no policy making authority with respect to the Association's position on given issues, but may make specific policy recommendations to the Executive Committee.

Article V - Membership

Section 1. Active Members: All pharmacists meeting the qualifications of Article IV, Section 1 of the Constitution are eligible for active membership in the North Carolina Pharmaceutical Association. Each applicant will complete a membership form available from the Association office and submit it together with annual dues in accordance with Subsection (1) below.

Subsection (1) Dues: All members shall pay the Executive Director in advance the annual dues as voted by the Executive Committee. Pharmacists residing out-of-state shall pay one-half (1/2) the annual dues. Husband and wife pharmacists shall pay one and one-half the annual dues and shall receive one mailing, with the exception of Association mail elections, for which they shall each receive a ballot.

Subsection (2) Non-Payment: Any member in arrears at any annual meeting shall not be entitled to vote. Anyone neglecting to pay annual dues shall lose membership in the North Carolina Pharmaceutical Association.

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Subsection (3) Reinstatement: A member suspended from a membership classification under this Article may be readmitted upon compliance with either of the following requirements:

(A) Submission of an application for membership classification as if the person was a new member, accompanied by payment of the appropriate dues. In such case, the membership classification shall date from the time of reinstatement.

(B) Submission of all dues and assessments in arrears. In such case, the membership classification shall date from the original date elected to the membership classification.

Subsection (4). Resignation: Resignation of membership shall be made in writing to the Executive Director. The Executive Director shall acknowledge all resignations in writing and shall report them to the Executive Committee.

Section 2. Life Members: Any member in good standing meeting the qualifications of Article II, Section 2 of the Constitution is eligible for life membership, and thereafter shall be exempt from all future annual dues. The cost of such membership shall be ten (10) times the individual's maximum annual dues.

Also, the Executive Committee is empowered to vote a Life Membership to a member whose contributions to the profession of Pharmacy and/or the Association have been outstanding.

Section 3. Student Members: Any student in a school of pharmacy meeting qualifications of Article IV, Section 3 of the Constitution, and paying the annual dues as determined by the Executive Committee is eligible for membership.

Section 4. Honorary Members: Honorary membership may be conferred upon non-members who have made noteworthy contributions to pharmacy. Nominations for such honorary members shall be made to the Executive Committee who shall consider and act upon such nominations. Honorary members shall have the privileges as set forth in Article IV, Section 4 of the Constitution.

Section 5. Retired Members: Any active member who is receiving social security retirement benefits, and practices less than an average of twenty (20) hours per week, is eligible for retired pharmacist membership. The dues for a retired member shall be one-half (1/2) that of active members.

Article VI - Meetings

Section 1. Official Meetings: The Association shall convene an Annual Meeting each year and such interim or special meetings as necessary to conduct the business of the Association. The membership shall be notified at least sixty (60) days in advance of an Annual Meeting and at least thirty (30) days in advance of an interim or special meeting of the Association.

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Section 2. At the opening of each Annual Meeting, in the absence of the President Vice Presidents, one member of the Executive Committee shall take the chair. In the absence of all, a President pro tempore shall be elected by the members present. In the absence of the Executive Director, the presiding officer shall appoint a Secretary pro tempore.

Section 3. Quorum: Fifty members constitute a quorum.

Section 4. Registration Fee: A registration fee shall be paid by each person participating in the affairs of the annual convention, except for student members. The amount of such fee shall be fixed annually by the Executive Committee.

Article VII - Student Members

There shall be a student branch of the Association, the membership to be composed of and limited to regularly enrolled students in a school of pharmacy within the State of North Carolina. The Branch must organize itself and elect a president, a secretary, and a treasurer. These officers shall be responsible to the Executive Director of the Association for funds collected as annual Association dues. It shall have a constitution and bylaws which shall be approved by the Executive Committee and then by the membership at the next annual meeting.

Article VIII - Delegates

The Executive Committee shall annually appoint two delegates to the American Pharmaceutical Association Annual Meeting House of Delegates, two to the National Association of Retail Druggists Annual Meeting and one to the U.S. Pharmacopeial Convention.

Article IX - Amending the Bylaws

Every proposition to alter or amend these Bylaws shall be submitted in writing at one session of the annual meeting and shall be decided by ballot at a subsequent session when, upon receiving a vote of two-thirds of members present, it shall become part of the Bylaws.

Article X - Auxiliaries

Section 1. Authorization: The North Carolina Pharmaceutical Association authorizes the organization of auxiliaries of the North Carolina Pharmaceutical Association to be permanent organizations to aid in the Association's activities.

Section 2. Membership: Membership of the auxiliaries shall be comprised of either spouses of members or representatives of pharmaceutical manufacturers or suppliers who sell to pharmacists and to the drug trade in general.

Section 3. Dues: Each member of an auxiliary shall pay annual dues to the Treasurer of an auxiliary in an amount approved by the auxiliary and the Association.

Section 4. Function: The Executive Committee of the North Carolina Pharmaceutical Association shall work with the auxiliaries in matters pertaining to the program activities.

Adopted Friday, April 22, 1985, at the Annual Convention in Raleigh, North Carolina.

Annual Report of The Constitution and Bylaws Committee

The meeting of the NCPhA Constitution and Bylaws Committee was called to order by the chairperson, Frank Burton, on March 19, 1989 at 1:00 p.m. The minutes of the last meeting were approved as written. Items from the last meeting were on the agenda to be updated and discussed: House of Delegates, timing of election of officers and composition of the Executive Committee and terms of office.

HOUSE OF DELEGATES

Frank reported that our recommendations on this matter made at the last meeting were accepted by the Executive Committee. Each local association has been asked to designate a representative who will be officially recognized at this year's convention. This item will be brought up for discussion at one of the general business sessions at the convention.

TIMING OF ELECTIONS OF OFFICERS, COMPOSITION OF EXECUTIVE COMMITTEE AND TERMS OF OFFICE

At the last meeting the committee made several recommendations for changes in the Constitution and Bylaws as reported in the minutes. Frank presented these to the Executive Committee and received feedback as reported in a memo mailed with the minutes. The Executive Committee agreed with the proposal to move the date of elections closer to the time of installation at the following convention but felt it would be acceptable to also move the nominating process from the convention to a time closer to the elections. They suggested that rather than taking nominations from the floor of the convention, the membership could submit nominations in writing (with endorsements from other members) to the Nominating Committee. However, because there is only one membership meeting yearly at which business is conducted this committee felt that removing the nominations process from the convention might exclude some members from full participation. The committee voted to leave our recommendation as originally stated, keeping the nomination process tied to the convention.

Loni Garcia had thoroughly reviewed the existing Constitution and Bylaws looking for sections which would be affected by the amendments proposed. A copy of these affected sections was distributed. Discussion ensued. In the Constitution, Article III - Code of Professional Ethics, Section 2, the committee recommended that the annual appointment of any Executive Committee member be made; not specifically President-Elect since that

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officer may have many other duties. Other minor details were changed and the finalized amendments were approved. A copy of the finalized amendments is attached. As provided in the Constitution, Article VI, Frank will present our recommendations to the Executive Committee who shall submit the amendments in writing at the 1989 convention. A vote on these amendments will be held at the 1990 convention.

Respectfully Submitted,

Fran Whaley
Committee Secretary

PROPOSED AMENDMENT TO THE NCPHA CONSTITUTION AND BYLAWS
CHANGING THE COMPOSITION OF THE EXECUTIVE COMMITTEE AND THE
TERMS OF OFFICE OF ITS MEMBERS (Sections to be deleted are lined through and the
new sections are in italics.)

CONSTITUTION

Article III - Code of Professional Ethics

Section 2. Ethics, Grievance and Practice Committee: The Ethics, Grievance and Practice Committee is the judicial division of the Association and shall be composed of five members, one of whom shall be ~~the current second vice president of the Association~~ *an Executive Committee Member appointed annually.* . . .

Article V - Officers

The Association shall have the following officers: A President; ~~a First Vice President who shall be President Elect; a Second Vice President Past President; a Third Vice President; and an Executive Director.~~

Section 1. Election Process: ~~The three Vice Presidents~~ *President Elect* shall be elected annually by mail ballot and shall hold office until a successor ~~are~~ is elected and installed. ~~The First Vice President~~ *President Elect* shall automatically assume the office of President without being subject to further election.

BYLAWS

Article I - Election of Officers

Section 1. A Nominating Committee of seven members shall be annually chosen by the President and charged with the duty of selecting candidates for the offices of ~~first, second, and third vice presidents~~ *president elect*, and ~~three~~ *two* members-at-large of the Executive Committee of the North Carolina Pharmaceutical Association *and any vacated unexpired terms of members-at-large*; and four Directors of the Pharmacy Foundation of North Carolina, Incorporated. *The first year following the adoption of these Bylaw changes, six members-at-large shall be elected; two with one-year terms; two with two-year terms; and two with three-year terms. Nominees for President Elect must have served at least one year on the Executive Committee.*

Section 2. At the last session of each Annual Meeting, the Nominating Committee shall submit for approval a slate of two or more candidates together with written biographical sketches for each of the offices of ~~First Vice President (President Elect), Second Vice President, Third Vice President, the office of President Elect and Six~~ Four candidates for ~~three~~ two places as members-at-large of the Executive Committee; and four or more members as candidates for four directorships of the Pharmacy Foundation of North Carolina, Incorporated. Additional nominations with written biographical sketches can be made from the floor.

Article II - Duties of Officers

Section 1. THE PRESIDENT

The President shall:

(5) Fill by appointment all committee and office vacancies brought about by death or inability to serve except as otherwise provided in the Bylaws. *Said appointee shall serve until the next regularly scheduled election.* [**President Elect cannot be filled in this way. See Section 2, item 4. **]

Section 2. ~~THE VICE PRESIDENTS~~ PRESIDENT-ELECT

The President-Elect shall:

(1) ~~The Association shall have three Vice Presidents. The First Vice President shall be the President Elect of the Association and shall Perform the duties of the President in the absence of the President.~~

(2) ~~First Vice President~~ Become the President of the Association for the unexpired term of the elected President and shall continue to serve a regular term as President, if the office of President shall be vacated for any reason.

(2) ~~(3) First Second, or Third Vice President, in that order, shall Preside at meetings of the Association and of the Executive Committee, in the absence of the President.~~

(3) ~~(4) The offices of the President Elect, Second, and Third Vice Presidents are filled~~ Be elected by written ballot. In the event that this office ~~are~~ is vacated for any reason, ~~such~~ the office may be filled only by special election.

Article III - Committees

Section 2. Composition and Responsibilities:

The composition and responsibilities of the standing committees shall be as follows:

(1) Executive Committee - The Executive Committee shall consist of the President, ~~First Vice President, Second Vice President, Third Vice President, three~~ (3) Immediate Past ~~Presidents~~ President, and President-Elect each serving a ~~three~~ one-year term, and ~~three~~ (3) six (6) members-at-large, two of which are elected annually, each serving a three-year term, and the Executive Director.

THE CAROLINA JOURNAL OF PHARMACY

Section 4. Term: The term of each member of any committee shall be one year, with the term ending at the close of the annual meeting following appointment, *except as noted otherwise in these By-laws*. Except for the ex-officio member of the committee, a member shall not serve on any committee for more than four (4) consecutive years or on more than three (3) committees concurrently.

Article VI - Meetings

Section 2. At the opening of each Annual Meeting, in the absence of the President or ~~Vice Presidents~~, *President Elect*, a member of the Executive Committee shall take the chair. In the absence of all, a President pro tempore shall be elected by the members present. In the absence of the Executive Director, the presiding officer shall appoint a Secretary pro tempore.

NOTE: THIS REPORT WAS PRESENTED TO THE MEMBERSHIP AT THE 1989 ANNUAL CONVENTION IN MYRTLE BEACH, SOUTH CAROLINA.

Editor's notes

These Constitution and Bylaws changes become effective upon acceptance by three-fourths of members present and voting at the Annual Convention. If you have any questions or comments about these changes, it is important you write or call the Chairman of the Committee, Second Vice President Betty H. Dennis. Her address is listed on the Masthead page of this journal.

If these changes are adopted at the First Business Session of the Annual Convention on May 24th, 1990, the Nominating Committee will present a slate of officers reflecting these changes subject to approval by the Association in convention assembled

Additional Changes to be Proposed

Constitution Changes

Article IV - Membership

This Association shall consist of Active, *Associate*, Life, Student, and Honorary Members.

Section 5. *Associate Member: Any person, not eligible for active membership, who is interested in advancing the profession of pharmacy and is willing to support the purpose and objectives of the North Carolina Pharmaceutical Association. An Associate Member is entitled to all rights of membership except the right to vote or hold office.*

Bylaws Changes

Article V - Membership

Section 6. Associate member. Any person, not eligible for active membership, who is interested in advancing the profession of pharmacy and is willing to support the purpose and objectives of the North Carolina Pharmaceutical Association. The dues for an associate member shall be the same as that for an active member.

The following shall be added to Article I, Section 2 of the Bylaws

If a nominee for office withdraws or becomes unable to run for any reason, the nominating committee shall reconvene to make an alternate nomination. This alternate nomination shall need no other approval.

~~Section 3: Section 3. The candidates so nominated shall be residents of North Carolina and their names shall be mailed within one month by the Executive Director to every member of the Association, together with the request that the members indicate their preference on a ballot enclosed for that purpose, and return the same by mail within one month. The candidates so nominated shall be residents of North Carolina and a ballot containing their names shall be mailed by the Executive Director to every member of the Association approximately four months prior to the date of the next installation of officers, together with a request that the members indicate their preferences on this ballot and return the ballot to the NCPHA office within thirty days.~~

Editor's Notes

These additional "Proposed" changes in the Constitution and Bylaws will be presented at the First Business Session of the 1990 Annual Meeting by the chairman of the Constitution and Bylaws Committee, Betty H. Dennis. They may be debated and discussed. The Constitution changes will be voted on at the 1991 Annual Meeting and the Bylaws changes can be voted on and adopted at the Second or Third Business Session of *this* Annual Meeting. If you have any comments on these proposed changes, which have been endorsed by the NCPHA Executive Committee, contact Chairman Dennis who is listed on the Masthead page of this journal



**American Pharmaceutical Association
137th Annual Meeting and Exhibit
March 10-14, 1990**

THANKS

OUR MANY THANKS TO THESE 23 NORTH CAROLINA PHARMACISTS WHO SELECTED US TO ASSIST THEM DURING 1989. WE WISH YOU AN EVEN MORE SUCCESSFUL 1990!

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|---|--|---|
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THE MEDICINE SHOPPE
Statesville NC | 17. Mr. Ron Shokes
Mr. Jim Suarez
MEDICAL VILLAGE PHAR.
Conover NC |
| 2. Mr. Buddy Pigg
SENTRY DRUG # 1
Lincolnton NC | 10. Mr. Charles Stine
INDIAN TRAIL PHARM.
Indian Trail NC | 18. Mr. Ken Lawing
BOWMAN DRUGS
Conover NC |
| 3. Mr. Mickey Watts
SERVICE DRUGS
Concord NC | 11. Mr. Paul Williams
UNCC PHARMACY
Charlotte NC | 19. Mr. Jim Matthews
MATTHEWS PHARMACY
Clinton NC |
| 4. Mr. Garland Sewell
SWANSBORO DRUGS
Swansboro NC | 12. Mr. Neil McPhail
MCPHAIL'S PHARMACY
Erwin NC | 20. Mr. Lynn McCaskill
ELLERBE PHARMACY
Ellerbe NC |
| 5. The Fuller
INNES STREET DRUGS
Salisbury NC | 13. Mr. Bill Coppedge
BILTMORE PHARMACY
Asheville NC | 21. Mr. Don Davis
Mrs. Gina Davis
CLINIC PHARMACY
Mooresville NC |
| 6. Mr. Johnny Hogg
SERVICE DRUGS
Pinetops NC | 14. Mr. Robert Jones
Giant Genie Discount Drugs
Charlotte NC | 22. Mr. Tommy Simpson
MEDI-RX DRUGS
Harmony NC |
| 7. Mr. Rick Brame
CLINIC PHARMACY
Jacksonville NC | 13. Mr. Garry Proffitt
HOSPITAL DRIVE PHARM.
Spruce Pine NC | 23. Mr. Herb Purser
Mrs. Helen Purser
BAYBORO PHARMACY
Bayboro NC |
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MEDIC ALERT NATIONAL PHARMACY PROGRAM —SOCIO-ECONOMIC SEMINAR—

At the 23rd Annual Seminar on Socio-Economic Aspects of Pharmacy Practice, to be held at the Radisson Hotel in High Point, March 22nd, the Medic Alert Foundation has graciously agreed to sponsor the National Pharmacy Education Program "Saving Lives in Emergencies: Three Roles for Pharmacists." This outstanding program will be presented during the afternoon session by a pharmacist and an emergency room physician. Faculty includes Fredrick W. Glass, M.D., Associate Professor Emeritus, Department of Surgery, Department of Emergency Medicine, Bowman Gray School of Medicine, Winston Salem, and Suzanne Campbell, Pharm.D., Consultant Clinical Pharmacist at the University Family-Care in Tucson, Arizona, and Director, Clinical Pharmacokinetics Service and Clinical Assistant Professor in Pharmacotherapeutics, University Medical Center in Tucson.

The course will include a discussion of the key elements of emergencies and emer-

gency care, practical tips on identifying patients with existing or special conditions important to emergency personnel, and a plan of action pharmacists can use to alert a patient at risk and to assist emergency personnel in providing the fastest, most appropriate care in emergencies.

The meeting announcements have been mailed and we expect a large attendance for this excellent program. The Socio-Economic Seminar is the best attended pharmacy meeting during the year so you will want to register promptly.

Other participants in the Seminar include John Gans, Executive Vice President, American Pharmaceutical Association who will speak on the future of Pharmacy, Benny Ridout will present an update on Medicaid regulations and Bill Felkey will deliver a Marion Merrell Dow sponsored program on "From Potential to Performance, Training and Motivating Employees.



Suzanne Campbell, Pharm.D.



Fredrick W. Glass, M.D.

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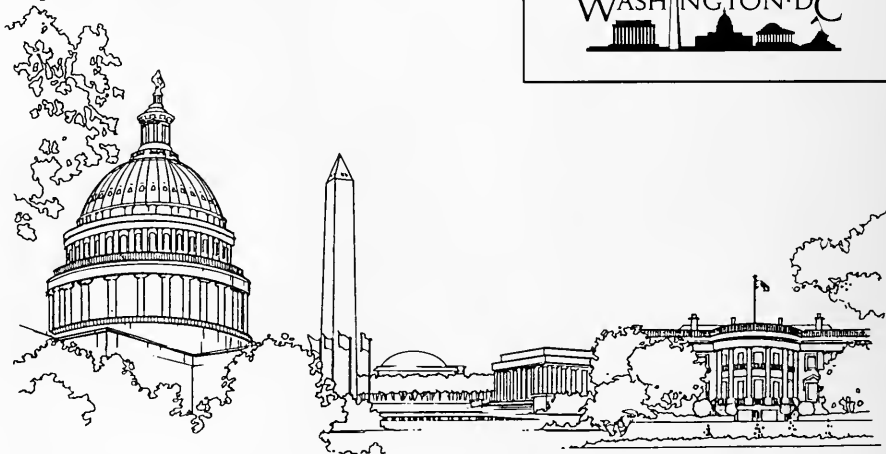
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PHARMACISTS EXPAND PROGRAM TO AID EMERGENCY VICTIMS

Of the more than 200,000 Americans who make unscheduled trips to hospital emergency rooms every day, one in four may have a hidden medical condition such as diabetes, heart disease, asthma, or serious allergies to certain medications like antibiotics or pain killers. In an emergency, these patients may be unconscious or incoherent and may be particularly vulnerable to inadequate or inappropriate treatment - or treatment that might simply be started too late.

This can be avoided if emergency personnel have immediate access to key facts about the patient's condition or medication - information that's available in seconds if the patient is wearing a Medic Alert® bracelet or neck chain.

Nonprofit Medic Alert is the only internationally recognized emergency medical system that maintains a data base to provide vital health information to emergency personnel around the world, 24-hours a day via Medic Alert's medical records hot line, seven days a week. It's the only system endorsed by emergency room physicians, ambulance personnel, the nation's hospitals - and now, by national and state pharmacy associations.

A Medic Alert Pharmacy Task Group, comprised of representatives from state and national pharmacy organizations, has been created to encourage an increased role for pharmacists in protecting the lives of their patients who may be a special risk in emergencies. Since the program began only three years ago, more than 14,000 pharmacies have begun promoting the nonprofit Medic Alert system. As a result, some 100,000 pharmacy patients have been enrolled in the lifesaving Medic Alert program, more than 20,000 patients have depended on the service in an emergency - and more than 3,000 lives were saved! All the result of direct pharmacist involvement.



The Pharmacy Task Force Group's goal for 1989-1990 is to double the number of pharmacies promoting the Medic Alert emergency system. According to Joel Tau, Chairman of the Medic Alert Pharmacy Task Group which designed and implemented the program, "we're encouraged by the fact that each month, nearly 3000 pharmacies are being added to the Medic Alert network. However, the potential for increasing the number of pharmacists involved in this project has hardly been tapped. Our goal to increase the number of participating independent and chain pharmacies from just over 14,000 to at least 25,000 by the end of 1989 should be attainable" Tau added.

To support this effort, the Pharmacy Task Group has kicked off a major national public education campaign aimed at bringing the important Medic Alert message directly to consumers and urging them to ask their

Continued on page 26

MEDIC ALERT

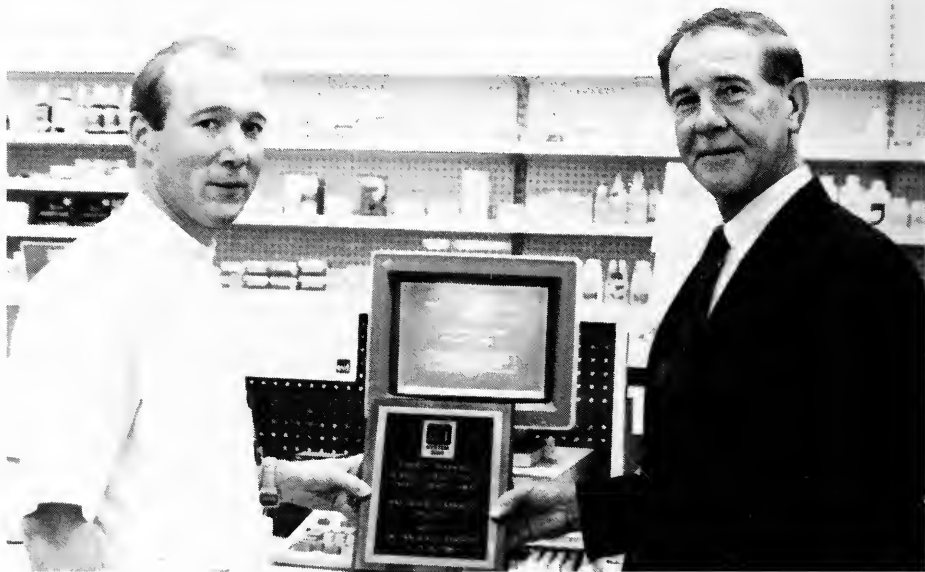
pharmacist for information and enrollment applications. Cooperating national pharmacy associations are actively promoting the program among their members, and each of the nation's 50 state pharmacy associations will be supporting this effort with television and radio public service announcements and through articles in local newspapers and professional journals.

In addition, the Medic Alert Foundation will contact non-participating pharmacies so that those interested will receive a starter kit containing patient information, patient enrollment forms, and point-of-sale display materials. The substantial costs involved in the production of patient education materi-

als and public service announcements have been underwritten through an educational grant from ICI Pharmaceuticals Group.

Nonprofit Medic Alert is the only internationally recognized comprehensive emergency medical information system that provided emergency personnel with vital patient information quickly and accurately 24-hours-a-day, 7-days-a-week. More than 1.8 million Americans are already enrolled in Medic Alert, and over a million more are enrolled through Medic Alert affiliates in 22 countries abroad.

To receive pharmacy starter kits, or more information about the program, call Rich Haggard, c/o the National Medical Alert Pharmacy Programs Professional Support Center 1-800-736-3342.



Smith Data Processing President Glenn Hammett (*right*) presents Ray Buser, co-owner of Liberty Pharmacy with a plaque commemorating the installation of the 3,000th QS/1 System

Smith Data Processing, parent company to QS/1 Pharmacy Systems, announced the 3,000th QS/1 Pharmacy System had recently been installed. The system was installed in Liberty Pharmacy of North Liberty, Iowa. Ray Buser, pharmacist and co-owner of the pharmacy, has been a QS/1 user since 1981 and owns three other QS/1 systems in pharmacies in Cedar Rapids and Mount Vernon, Iowa. Smith Data Processing President Glenn Hammett presented Buser with a plaque commorating the occasion.

DICKINSON'S PHARMACY

This feature is presented on a grant from "Dickinson's Pharmacy —The Independent Voice," an 8-page practical monthly newsletter available from Ferdic, Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45.

The real PCS story. There may be a lot of things wrong in pharmacy these days, but after the past month, nobody can say there's anything wrong with pharmacy's rumor mill or its imagination. Both have been working overtime to create a lively view of tomorrow out of developments inside PCS-McKesson. Now it's time for some plain facts.

California Pharmacists Association executive vice president Robert C. Johnson — the most able pharmacy leader of our time — has gone to McKesson Drug Company to be CEO of its Pharmaceutical Card System (PCS) subsidiary next month, following the successful acquisition by McKesson of the 14% of PCS stock that it did not previously own.

Apart from the fact that Johnson has some exciting ideas for PCS after he takes over, among which will be the hiring from CPhA of Robert Abrams, the founder of Paid Prescriptions before it fell into hostile hands, you can disregard all other rumors.

Specifically, do not believe that CPhA's PSAO, the Pharmaceutical Care Network, or its CEO, John Skhal, are going to PCS. There are no plans for that.

Similarly, do not believe that NARD's national PSAO, RxNet, will go to PCS. Neither will NARD executive vice president Charles M. West, NACDS president Ronald L. Ziegler, or APhA executive vice president John A. Gans become members of the PCS board (PCS won't have a board now that McKesson has 100% of its stock).

And don't believe that there are any anti-trust implications in Johnson and Abrams going to PCS. Those sorts of executive recruitments go on every day in American business.

The rumors got under way because of the old-fashioned, unsurprising, routine oil-and-

water mix of big-business corporate secrecy during stock manipulations and strategic planning on one hand, with the pharmacy market place's normal hyper-excitement over any ideas that might affect daily business on the other. The most exciting rumor, for example, had it that Johnson, Abrams and Skhal would go to PCS in a mega-deal with West, Gans and Ziegler that would fold PCN and RxNet into PCS-McKesson and create the most powerful pharmacy market-ing force in the history of the universe.

Johnson, West and Gans subconsciously may have let that particular rumor run a while by failing to publicly ridicule it, upfront. Why should they spoil everybody's fun?

It was a delightful fantasy, and for as long as pharmacy leaders toyed (as they did) with the idea that they might buy the 14% of PCS stock that McKesson was trying to buy, and even lean on McKesson to sell them the rest, it was harmless fun. But the idea of pharmacy buying PCS was never practical. The market value of the stock was \$150 million, certain to rise higher if a serious buy-out was tried — and a controlling interest at half that amount would still be far beyond the reach of the combined funds that could be scratched together by every organization in pharmacy.

McKesson did think about it. So did Johnson, Gans, West and Ziegler. But as soon as they did think about it, they saw it for what it was — pure fantasy.

Which brings us back to the comparatively "dull" reality of Johnson's momentous decision. It's a little bit less than the most powerful pharmacy force in the history of the universe, but it's still pretty exciting. At 54, Johnson has been CPhA's head honcho since 1969, and in that time he unified three California pharmacy organizations who were at each others' throats a lot of the time. Today, his creation — CPhA — is the strongest and largest state pharmacy organization in the nation with, in Johnson's words, "incredible influence in the state Capitol and nationally."

Continued on page 28

DICKINSON'S PHARMACY

Its PSAO, likewise, is among the most effective in the nation. And last summer's collaborative CPhA-hospital pharmacy action statement on the future of pharmacy is the best document on that subject pharmacy has produced anywhere.

None of those accomplishments would have come about without the genius of the man himself, however. Fully the equal of the legendary William S. Apple without the bombast that drew so many enemies to the latter, Johnson was unfairly denied leadership of the American Pharmaceutical Association on each of the two runs he made for it.

APhA's kingmakers were so afraid of the discord that they feared "another Apple" could bring that they simply could not let themselves look closely enough at Johnson to put their fears to rest. In his 20 years at CPhA, Johnson has been the antithesis of Apple in the discord department — a veritable harmony-maker as he went about the building of pharmacy power bases on an Apple scale. That unique genius for constructing workable political coalitions that actually build things — as opposed to impressing the voters — will now face its biggest challenge of all at PCS.

There, Johnson must convince the hard-headed, pharmacy-ignorant, bottom-line barons of corporate America that the prescription drugs in their employee and retiree benefits aren't widgets — that they are, instead, the keys to effective cost-containment rather than mere targets for infinite discounts.

Johnson wants to show all the uneducated and the doubters that a better kind of drug utilization review by pharmacists using individual patient profiles is cost-effective and properly part of pharmacy services that should be appropriately reimbursed. At PCS he will have an unparalleled opportunity to do that.

We wish him the best, for pharmacy and most of all for himself. He deserves it.

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OBITUARIES

Billy Thomas Coward

Billy T. Coward, Kannapolis, died Saturday, December 9, 1989 after an automobile accident. He was 58 years old. Coward was born in Chesterfield, South Carolina and graduated from the Medical University of South Carolina in 1958.

William Howard Harrelson

William H. Harrelson, Tabor City, died at the age of 61 at his home. Harrelson attended the University of South Carolina where he received his BS in pharmacy. He operated Harrelson's Pharmacy in Tabor City and served as mayor of the town for four terms.

John Calvin Brantley Jr.

John C. Brantley Jr., Raleigh, died Monday, January 22, 1990 at the age of 84. Brantley operated Brantley and Son Inc, Raleigh's oldest pharmacy from 1930 to 1988 when he retired, with a one year stint at Parker's Drug Store in Henderson in 1948-1949. He was a 1930 graduate of the Philadelphia College of Pharmacy and Science. Brantley served on the NC Board of Pharmacy from 1947 to 1952.

Frances Earle Campbell

F.E. Campbell, Hamlet, died Sunday, October 8, 1990 at the age of 89. Born in Columbia, South Carolina, he graduated from the UNC School of Pharmacy in 1924 and was licensed in 1925. He went to Hamlet in 1930 as a partner in C & W Pharmacy. He semi-retired to relief work in 1966 having owned Campbell Pharmacy since 1945.

BIRTHS

Edwin and Kathryn Link announce the birth of Kathryn Allen on November 29, 1989. She weighed 7 pounds 3 ounces. Edwin is a 1977 graduate of the UNC School of Pharmacy and owns the Medicine Shoppe in Wilmington.

FDA WARNING

The Food and Drug Administration recently warned consumers against buying or using potentially dangerous L-Tryptophan supplements distributed nationally by Nutricology Inc. of San Leandro, California, which also markets under the name Allergy Research Group. The products are:

L-Tryptophan Capsules (500 mgm), 100 capsule bottle, under the Allergy Research Group label,

Tryptophan P.R.N. (350mgm), 30 capsule bottle, under the Nutricology and Allergy Research labels,

Free Aminos (750mgm) capsules and **Free Aminos without Cystine and Cysteine**, both in 100 capsule bottles, and **Free Aminos Powder** in 50 and 100 Gm bottles, all under both labels.

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THE DEMAND FOR PHARMACISTS IN NORTH CAROLINA

by Jan D. Hirsch, Ph.D., William P. Johnston, Ph.D., and William R. Adams, Jr.

Anecdotal evidence has suggested that a balance between demand and supply of pharmacists has become increasingly difficult to achieve in North Carolina. The purpose of this study was to answer three questions related to the demand side of the pharmacist manpower equation.

1. Was there a shortage of pharmacists relative to pharmacy sites in North Carolina during the study period (February to June, 1988)?

2. If a shortage existed, what was the extent of the shortage?

3. If a shortage existed, which types of pharmacy practice sites were affected?

Data Collection

A post card questionnaire was used as the survey instrument in this study. The questionnaire was mailed to 1808 pharmacy practice sites. The mailing list used was obtained from the North Carolina Board of Pharmacy. The list represented the population of sites with pharmacy permits in North Carolina, excluding sites with only limited pharmacy permits. Sites with limited pharmacy permits (e.g. long term care facilities) were excluded because these sites generally do not create demand for an on-site pharmacist, as they usually rely on consultant pharmacists with primary employment in other settings.

The questionnaire was mailed under a cover letter from the North Carolina Board of Pharmacy supporting the data collection effort. The mailing occurred in February, 1988. Data were received until June, 1988. Thus, the results of this survey represent the demand for pharmacists during the time period ranging from February to June, 1988. Collecting data for a range of time as op-

posed to a point in time is not ideal. Since the data were collected over a five month period, flow of pharmacists in and out of the system and migration between pharmacies were not accounted for. To the extent these flow variables changed during the study period the estimates of positions available are over or underestimated. Future investigation of the demand for pharmacists will be tied to a specific date to avoid this limitation. (A current survey of pharmacy sites is tied to October 15, 1988).

Results

A total of 1525 usable responses was obtained, which represented an 84.3% usable response rate. The distribution of respondents among practice site types (independent, chain and hospital) was similar to that observed for pharmacy permit holders in North Carolina. Therefore, the results of this survey are believed to be representative of the population in the three primary pharmacy practice settings in North Carolina. The potential for non-respondent bias is recognized. Non-respondents may have been those with or without open pharmacist positions. Therefore, the estimates of percentage of sites in the overall population with open pharmacists positions may be slightly under or overestimated.

Approximately 19% or 289 respondent sites reported some kind of open position (full- or part-time) for a pharmacist. An almost equal percentage of independents (16%) and chains (19%) reported an open position, while slightly more than one-third (37%) of hospital respondents reported an open position.

In addition to investigating the number of pharmacy practice sites with an open position for a pharmacist, the total number of positions actively recruited for was also examined in this study. A total of 236 full-time and 107 part-time positions were reported as being actively recruited for overall. The percentage of sites with at least one actively recruited position (full- or part-time) is listed in Table 1.

Continued on page 32

TABLE 1.

Percentage of Responding Sites with
at least one Actively Recruited Position

Site Type	Full-Time	Part-Time
Independent	6%	9%
Chain	15%	3%
Hospital	29%	11%

If each actively recruited part-time position is assumed to equal one-half of a full-time equivalent (FTE) position, a total of 289 actively recruited FTE positions existed during the survey period. ($107/2 + 236 = 289.5$) The number of FTE positions estimated may be slightly over or underestimated due to variance in the number of hours required of a part-time pharmacist.

The majority (52%) of actively recruited full-time positions were located in chains, 31% were in hospital, and 16% were in independents. When actively recruited part-time positions are considered, the majority (52%) were located in independents, 27% were in chains, and 16% were in hospitals.

Discussion

Apparently, at the time of this study, a shortage of pharmacists existed relative to the number of pharmacy sites in North Carolina. However, the shortage can be discussed at two levels: one level based on "FTE positions reported available (open), and a lower level based on actively recruited positions. Approximately one in five respondent sites reported at least one open position (full or part-time). The number of positions estimated to be open during the period of this study was 320 FTEs. However, it was estimated that only 289 (90%) of the FTEs were actively recruited positions. The reasons for this discrepancy were not addressed in this study. Possible reasons for pharmacists reporting open positions which were not actively recruited for may include previous recruiting failures or lack of budget

approval. This discrepancy highlights the importance of comparing open vs. actively recruited positions in future discussions or investigations of the demand for pharmacists.

To characterize the demand for pharmacists revealed in this study, only actively recruited positions will be considered. Approximately two-thirds of the actively recruited positions were full-time. Slightly more than half of actively recruited full-time positions were located in chains as would be expected due to their prevalence and growth. The majority of actively recruited part-time positions were located in independents.

Using the estimated number of actively recruited FTEs (289) for the three primary practice settings, vacancy rates for each practice setting and an overall rate were calculated (Table 2). Independent pharmacies had a slightly lower vacancy rate while chains and hospitals had a slightly higher rate than the overall estimate. These site specific vacancy rates suggest the relative need for pharmacists in chains and hospitals may be greater than independents.

TABLE 2

Vacancy Rates*

Independent	4.8%
Chain	8.0%
Hospital	9.2%
Overall	7.3%

$$\left(\frac{\# \text{Actively Recruited FTEs}}{\# \text{RPhs} + \# \text{Actively Recruited FTEs}} \right) \times 100$$

This finding is reasonable, given the growth rate of chains (and thus positions) and the growth rate of positions demanded by hospitals due to expanded services and expanded pharmacist roles.

In conclusion, categorizing the shortage of pharmacists as severe or mild is virtually impossible with this one observation due to

the dynamic nature of supply and demand. Factors which could contribute to relieving the shortage in the future include slowing of the growth rate of pharmacy sites, an increase in pharmacy graduates, and increased use of technicians. Factors which could intensify the shortage include increased number of pharmacists working part-time, growth in pharmacy sites, and pharmacist role expansion. The likelihood of occurrence for each of the above mentioned factors can be, and is, debated; therefore, long-term predictions made from one observation would not be optimum.

The results of this study suggest several recommendations for the profession of pharmacy in North Carolina.

Tracking Databases

The number of pharmacist positions available and actively recruited for by pharmacy sites should be tracked in a continuous manner over time. Including questions as part of the NC Board of Pharmacy permit renewal form could easily achieve this goal. A second survey of pharmacy sites, currently being conducted, utilized an insert with relevant questions in the 1989 pharmacy permit renewal mailing. Making these questions an integral part of the Board's renewal form and data processing procedures would facilitate the formation of an ongoing database regarding the demand for pharmacists in North Carolina.

In addition to tracking demand data, compilation and characterization of supply data should be pursued. A single database which perpetually tracked pharmacy graduates, reciprocating pharmacists, proportion of active vs. nonactive pharmacists, working hours, etc., could be assembled using data currently available from the NC Board of Pharmacy and the two pharmacy schools. If compatible demand and supply databases were available, more complicated issues, such as migration patterns of pharmacists, need for targeted recruitment of pharmacy students, and changing practice patterns could be examined.

Investigate Effects of Shortage

The effect of a shortage of pharmacist personnel on pharmacy services provided will vary due to many factors such as length of time a position is vacant, type of site with a vacant position, job description of vacant position, etc. For example, a vacancy in a hospital setting with ten staff pharmacists will, most likely, not impact pharmacy services to the same degree as one vacancy in a hospital with three staff pharmacists or a community pharmacy with two pharmacists. Pharmacist positions which remain open for an extended period of time will most likely affect growth in the number of pharmacy services provided as well as innovation in pharmacy services. An investigation of the effect of a pharmacist shortage on the provision of standard and innovative pharmacy services would be an important step in quantifying the short and long-term impact of a pharmacist supply and demand imbalance.

When this article was written, Jan D. Hirsch, Ph.D., was Assistant Professor, Division of Pharmacy Administration, University of North Carolina School of Pharmacy, Chapel Hill. She is now Assistant Director of Pharmacoeconomics, Glaxo, Inc. William P. Johnston, Ph.D., is Assistant Professor, Division of Pharmacy Administration, University of North Carolina School of Pharmacy. William R. Adams Jr. is President of the North Carolina Board of Pharmacy and Director of Pharmacy, Wilson Memorial Hospital, Wilson.

This project was funded by the UNC School of Pharmacy Policy Research Laboratory.

The authors wish to gratefully acknowledge the Board of Pharmacy for supporting their data collection efforts.

LETTERS FROM THE MAILBAG

The Honorable Terry Sanford
United States Senate
Washington, D.C. 20510

Dear Senator Sanford:

I am a registered pharmacist. I operate a small independent pharmacy in the southeastern North Carolina community of Beulaville. I also supply prescription drugs to about 150 rest home patients, which are predominantly Medicaid. Therefore, a sizable portion of my business is Medicaid.

My state association (NCPhA) has made me aware of an effort by the Health Care Financing Administration (HCFA) to discount the already discounted ingredient cost of filling Medicaid prescriptions. Indeed, it goes beyond an "effort." It is my understanding that the decision has already been made and it is only through intervention by you and your colleagues that this decision can be reversed.

It is likely that you have already heard from some of my colleagues in North Carolina and are more than aware of my problem, but I would like for you to hear it from my perspective.

Presently, North Carolina, "reimburses" our pharmacies with a "discounted Average Wholesale Price" (AWP), plus a professional fee of \$4.04 per prescription per month. Now, without going further, that would sound fair and just. This appears to be the way HCFA is viewing our situation. However, North Carolina pharmacists are billing Medicaid from 12 to 15% less than AWP, because of the unique features built into our program. There are a sizable number of drugs whose reimbursable cost is determined by the State agency who established their "Estimated Acquisition Cost" (EAC) at "the agency's best estimate of the price generally and currently paid by providers."

Additionally, North Carolina pharmacists do not receive a dispensing fee of \$4.04 if the prescription has to be refilled during a calendar month. The North Carolina program is presently designed to "reimburse" our pharmacists for their cost in filling Medicaid pre-

scriptions. It is not designed for a profit to our pharmacists. Any reduction in ingredient costs (such as 10% off AWP) will reduce the reimbursement level of our program to below our costs and force many or most of our pharmacists out of the Medicaid program.

While it is true, that through the use of our own risk capital, we may buy some of these drugs at prices lower than those stated. However, to do so, we must use "risk capital" to buy in high quantities and to pay for these drugs in a discountable period. I am convinced that I could make better use of this "risk capital" using other investments. However, I love my profession and prefer to use it in this manner. I am convinced that if I did not use my risk capital in this manner, and just depended on buying my drugs at AWP, I could not survive in the pharmacy profession, especially while participating in the Medicaid program.

Senator, it is my carefully considered opinion, that HCFA is coming into this situation with blinders on, hell bent to slash costs, no matter what. Their thrust is unreasonable, with no thought of the ultimate damage they will do to an otherwise well run and successful program. I am told, and I do believe that North Carolina stands as one of our national leaders in efficiency in its Medicaid program. It is fair and it is reasonable. However, HCFA is going to ruin it. I am equally convinced that if HCFA makes these slash cuts, that it could make the situation that I have explained to you on how I have survived — impossible to survive.

The people who will be hurt most, the real casualties in this effort by HCFA, are going to be people like the Medicaid patients in the rest homes that I serve.

Senator, I urge you to stand lift your voice and influence in opposition to this effort by HCFA to subvert and destroy one of the few well run and efficiently operated social programs in our country today.

Sincerely,

Russell Bostic
Beulaville, N.C.

The Honorable Jesse Helms
United States Senate
Washington DC 20510

Dear Senator Helms,

I am writing to call your attention to a most urgent problem facing retail pharmacy in North Carolina, and in a broader scope retail pharmacy throughout the nation. I refer of course to HCFA efforts to disallow North Carolina's prescription drug reimbursement component of the state Medicaid plan. Similar efforts by HCFA over the years in many other states have resulted in less than adequate reimbursement rates for retail pharmacy in those states on Medicaid prescriptions.

North Carolina's state Medicaid plan now uses AWP (average wholesale price) as an estimated acquisition cost base in calculating prescription prices for Medicaid recipients. HCFA claims that AWP significantly overstates the price that pharmacy actually pays for drug products. Pharmacy does purchase drugs below AWP. These discounts from AWP are significant — significant to our very survival. Such discounts or rebates typically range from 2% to 15% and are only given when we retailers meet the various and many qualifying rules which wholesalers impose on us. Large monthly minimum dollar volume, large minimum, single order sizes, use of electronic order equipment, timely twice monthly payment of bills, and various other rules are typical. Many pharmacies like myself are members of co-ops at sizable capital investments. In my case the investment exceeds \$75,000, and we must still abide by some of the above rules. Like most all stores I use a second wholesaler as a backup for shortages and emergencies. With this second wholesaler I always pay full AWP.

Medicaid reimbursement rates are also important for another often overlooked reason. These Medicaid rates seem to serve as a "benchmark" for "third party plans" to emulate. Consequently when Medicaid rates are too low then "Third Party Plans" through-

out the nation, followed suit. Many pharmacies like ours will not honor such plans, as they are unprofitable for us. Since Medicaid rates seem to "set the pace" for the nation, then they should certainly be adequate and fair to retail pharmacy.

We in retail pharmacy do certainly want our state and federal governments to purchase drugs as cheaply as possible, and to contain costs in our many governmental medical programs. In containing these costs however, we would encourage HCFA to go after the real culprit, pharmaceutical manufacturers. Retail pharmacy has no control over skyrocketing drug costs as pharmaceutical manufacturers call all the shots. The small discount which retail pharmacy receives off AWP is a pittance compared to the margins of manufacturers. Their markups will stagger the imagination. These huge markups are evidences by their multitiered discriminatory price levels. Some companies recognize many price classes; retailers, wholesalers, chain wholesalers, mail order, nursing homes, HMO, hospitals, and governmental agencies. Of course retailers pay the highest of all these price levels. The spread of these price levels from top to bottom will again stagger the imagination. The discount from AWP that HCFA wants and certainly deserves should come from manufacturers not retailers.

I know that HCFA efforts are to contain costs, and as a taxpayer I am certainly in favor of saving tax dollars. I do however wish to continue as a taxpayer, and the long range effect of HCFA plans to discount AWP at the retail level will lead to the demise of retail pharmacy as a taxpayer.

I am enclosing copies of two editorials from recent issues of pharmacy periodicals that will shed additional light on some of the topics I have touched. We ask and plead for your help on behalf of retail pharmacy, the cornerstone of our national drug distribution system.

Sincerely,

Gerald K. Harrington
Pharmacist Owner

MORE LETTERS

Mr. Rick Walter, RPh
PCS, Inc.
Phoenix, Az. 85072-2115

Dear Mr. Walter,

For some reason, there are appearing more and more AWP discount plans from PCS. Let me state that to me my AWP discount is a non-negotiable item which I will not give up. It is the only thing which has enabled us to remain in business with manufacturers routinely increasing the cost of goods sold and pharmacy fees being increased by negligibly amounts. Any discount we receive from the wholesaler, as you well know since you are a pharmacist, is granted only with binding restrictions. In other words they are performance generated making them earned discounts. They are earned by me - not by PCS - and not by the customer's employer. They are available only when paid at a rate roughly twice as fast as you can pay the claim. This frequently means borrowing the money from the bank to meet wholesaler deadlines to obtain this discount.

What I have been doing is explaining the above to the customer and informing them that their plan does not even pay welfare rates and that in North Carolina, I am compelled to either collect the difference from the customer or reduce my fee to the state to match the lowest plan acceptable from any other third party. The customer is not compelled but merely asked to compensate us for the shorted amount.

I'm tired of coming off as heavy when all I'm asking for is fair compensation. You can't fill a \$100.00 AWP for \$94.04 and survive.

You people at PCS have a very significant role in determining whether it is possible for the independent pharmacists to survive into the next century. You can take the high road by explaining to employers that they must compensate the pharmacist fairly if they expect him to welcome their employees business - that if they can't afford a particular plan, the co-pay can be adjusted upwards or

the spread made larger between brand and generic copays. Or you can take the low road by sacrificing the pharmacist to attempt to buy a few more groups at any price. After all he's not compelled to take it right? How do you tell your neighbor you can't fill his prescriptions anymore just because his employer and PCS won't even compensate you at welfare rates? We're trying to get more customers, not turn them away. All we're asking for is what's fair. I'm not looking for excess compensation, just to at least break-even. If you were to insert a rider into all your group plans something to the effect that in no case will the pharmacist be reimbursed at a rate less than medicaid compensation. This would eliminate all our problems - at least here in North Carolina where we are required to lower our medicaid fees to what we collect from any other third party compensation plan.

It is my desire to comply with all PCS requirements - please make that possible. The long term good is what we both should be concerned about. Leave the AWP alone. Take into consideration that the pharmacist receives some compensation from a discount when deciding the fee level. We can live with a \$4 range fee if the AWP is left alone. The fee would have to be closer to \$5.50 if the AWP discount is subtracted. And then the pharmacist would be overcompensated on cheap items and severely undercompensated for expensive items. The only true fair compensation system contains both AWP compensation and fee compensation.

I know my letter is not the only one you've gotten on this matter and you can believe that for every pharmacist who does write you there are 100 more who can't or won't take the time but feel the same way.

Let's see if we can't take a new tack for assisting each other to grow and prosper. After all it's in our both best interest. Thank you for allowing me to ventilate my feelings and opinions.

Sincerely,

Frank P. Purdy

MINIMUM WAGE HIKE SET FOR APRIL 1

By William O. Ashcraft and Manuel P. Lena Jr.

Effective April 1, 1990, the minimum wage increases to \$3.80 per hour, and then to \$4.25 per hour on April 1, 1991. Under recent amendments to the Fair Labor Standards Act of 1938, firms engaged in commerce or in the production for commerce whose annual gross sales volume falls short of \$500,000 are exempt from the new wage floor. Likewise, certain family-owned and operated businesses, hospitals and educational institutions are exempt. Under the Act, newly-exempted employers must not lower pay below the previous rate of \$3.35 per hour.

A sub-minimum training wage of \$3.35 per hour may be paid only to employees between 16 and 19 who are holding their first

job. On April 1, 1991, the sub-minimum rate rises to \$3.61 per hour. The Training wage can be paid for the initial 90 days of an individual's employment in his or her job; after this period, the employee's earnings are computed using the regular wage rate. This same person may be paid the training wage for an additional 90 days if the employee begins working for a new employer which provides an on-the-job training program. In no case, however, can a worker be paid the sub-minimum wage for more than 180 days total. The employee has the burden to provide an accurate list of past employers to show that the 90 days of sub-minimum payment have expired. Two scenarios may be helpful to an understanding of the effect of the Act.

Scenario A: On April 1, 1990, an individual between the ages of 16 and 19 applies for his or her first job. For the first 90 days of employment, the employer may pay a sub-minimum training wage of \$3.35 per hour. The new worker may be paid the training wage for an additional 90 days if certain guidelines are met. The employer must:

1. institute a genuine on-the-job training program which provides employees with "technical ... and personal skills that are essential to the full and adequate performance of ... employment";
2. keep a copy of the training plan on file at its place of business;
3. submit annually to the Secretary of Labor a list of all positions for which on-the-job instruction is provided;
4. give employees a copy of the training program; and
5. post in a conspicuous location a notice which informs employees of the type of jobs for which such training is supplied.

Scenario B: Employers discharges an employee earning at or above the minimum wage or effectively reduces the employee's hours. The Act specifically prohibits the employer from filling that position or those vacant hours with an otherwise training wage-eligible worker. Employers cannot pay the training wage if "any other individual

Continued on page 38

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MINIMUM WAGE

has been laid off by such employer from the position to be filled by the eligible employee or from any substantially equivalent position." The Act further prohibits employers from taking "any action to displace employees (including partial displacement such as reduction in hours, wages, or employment benefits) for purposes of hiring individuals at the [training] wage. . . ."

Prior to April 1, 1990, pharmacists should determine the applicability of the 1989 Fair Labor Standards Amendments to their operation. The Act will have a definite impact on job opportunities and compensation levels for inexperienced workers this summer. Questions about the Act should be addressed to your attorney.

William O. Ashcraft is an attorney with Jackson & Walker in Dallas. Mr. Ashcraft received his J.D. in 1981 from Southern Methodist University and his L.L.M. in labor law in 1985 from New York University. Mr. Ashcraft's practice is predominantly in the area of labor and employment law.

Manuel P. Lena Jr. is a pharmacist/attorney with Jackson & Walker in Dallas. A former assistant professor of clinical pharmacy, he is president-elect of the UT College of Pharmacy Alumni Association. Questions and comments may be addressed to him at 901 Main Street, Suite 6000, Dallas,

Dear Al,

Just a note to let you know about being on a tropical island. We have settled somewhat into an apartment a block off the major tourist area in Guam. We can see the bay from our living room window and are only a couple of miles from work. Of course, on an island this size you're only a couple of miles from everything.

As you can see from the enclosed card Clark's official title is area Chief Pharmacist. He's not sure what that means but the hours aren't bad. The pharmacy fills about 400 Rx's a day and is open from 8 a.m.-11 p.m. M-F, 9 a.m.-10 p.m. Sat. & Sun. There are four full-time pharmacists who rotate the hours in 40 hour shifts. The problems involved in running a pharmacy 10,000 miles away from the nearest supplier revolve mostly around the mail service and boat schedules. The mail service is lousy. We received a package from home that took 90 days. Third class mail comes by a real slow boat.

Now the important information. Clark has just passed his open diving certification. He can now scuba dive. The temperature this week is in the middle 80's. Clark says to tell you they practice strange medicine here. Diabetes and high blood pressure are rampant. There really is no old age here. People don't live much past 60.

One last piece of news of which we are very proud. We can eat with chopsticks. This is an important skill on an island that is rapidly becoming the retirement village for Japan.

Have a real Merry Christmas

Jane Doggett
(Formerly of Summerfield, NC)

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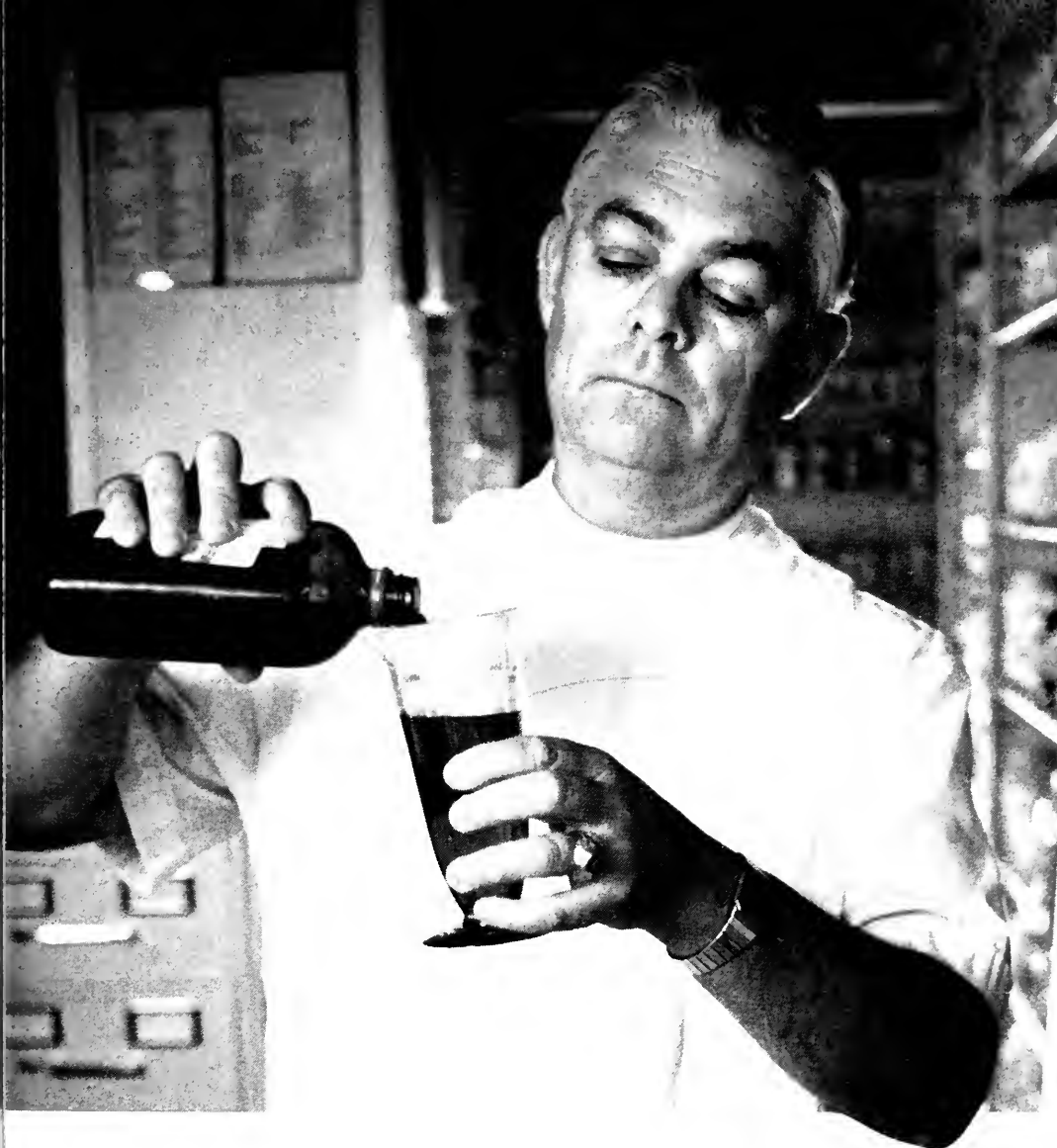
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Jack Watts, Jimmy Jackson and George Cocolas
at the Pharmacy Leaders Forum. Story on page 5

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ISSN 0528-1725

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The *Carolina Journal of Pharmacy* is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.

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NC PHARMACY LEADERS DISCUSS FUTURE



Benny Ridout, Bill Edmondson and Bill Randall during a break.

North Carolina's pharmacy leaders came together for the sixth consecutive year, ready to talk and willing to listen. The only one of its kind in the country, the North Carolina Pharmacy Leaders Forum, took place February 9-11 at the Mid Pines Hotel in Southern Pines. The NC Board of Pharmacy (NCBP) convened 39 invited guests from the two NC schools of pharmacy, manufacturers, wholesalers, chain drugstores, the state medical assistance program, NCPhA, and NCSHP. Scheduled for the day-and-a-half meeting in Southern Pines was a packed agenda as well as some time for socializing. As in previous years, the goal for the gathering was simply to share thoughts and ideas, rather than to accomplish specific tasks or make formal recommendations. William Adams, President of NCBP, presided.

Campbell Dean Ronald Maddox reported on the **Task Force on Pharmacy**, a group originated by the Forum in 1987. (Appendix I) The task force was charged to "collect, formulate, and disseminate material relating to pharmacy with a goal of educating the public, other professionals and payers about the role of pharmacists in health care". The results of their study of the perceptions held by consumers, physicians, and third party payers about pharmacists will be published in the March 1990 issue of *American Pharmacy*, and in *The Carolina Journal of Phar-*

macy and *NCSHP Newsletter*. The task force is now in the education phase of its charge and is planning a public relations campaign. Participants shared ideas on possible approaches and funding sources.

Attendees voiced varied opinions on proposed legislation for **mandatory patient counseling** by pharmacists in North Carolina. (Appendix II) USP and NABP are encouraging states to require patient counseling. (Appendix III) Issues discussed were counseling on new prescriptions vs refills, monitoring mechanisms, mail order services, legal liability, upgrading the professional practice of pharmacists, and other details of "model" regulations. NCPhA currently supports patient counseling as a standard of practice.

In a short discussion on **mail prescriptions**, it was stated that mail-order companies are filling prescriptions mostly for maintenance drugs and not for acute care medications. These companies promote themselves as being able to supply *all* drugs, including those that require compounding.

Brief reports were heard from the deans and faculty of **Campbell University School of Pharmacy** and the **University of North Carolina-Chapel Hill School of Pharmacy**. Campbell will graduate its first class of PharmD students this spring, and is expanding its clerkship opportunities for students. NCPhA and Campbell will hold their first annual continuing education meeting September 6-9, 1990. Although the primary mission of UNC-CH is research, Dean Miya stated that undergraduate teaching is the most important program of the School of Pharmacy.

Dr. John Mackowiak reported on the **Strategic Plan to Assist the Medically Indigent of North Carolina**, prepared by the NC Institute of Medicine. (Appendix IV) Pharmacy was *not* represented on the

Continued on page 6

LEADERS FORUM

Institute's committee which formulated this proposal. The report calls for an insurance plan supported by federal, state, and local governments as well as employers to provide health care for the 800,000 individuals in the state who don't have adequate health insurance. In Dr. Mackowiak's opinion, this particular plan will not be enacted because of inadequate government funds. Of particular interest to the Forum participants is that prescription drugs were listed as an *optional* service in the proposal. There was total agreement by the Forum that drugs should be considered a *basic* service in health care. NC's pharmacy leaders, especially NCPHA, must be politically active to assure that drugs are not viewed as "optional" in future proposals of this sort.

Forum participants agreed that the NCBP should take leadership in **redefining the practice of pharmacy**. Pharmacists must be active in preventing the very costly misadventures that occur with the use of drugs. NC has the opportunity to lead the country in making a definitive statement on the pharmacy needs of the 21st century.

The issue of the **entry level PharmD degree** prompted much discussion, a wide range of opinions, and little agreement. Next year's Forum will assess the impact of the graduation of 47 PharmD's from Campbell on the practice of pharmacy in the state.

Combining the issues of the **use of pharmacy technicians, technology in compounding and administration, assuring competence of pharmacy practitioners, and dispensing physicians**, Mr. Fred Eckel warned that the state's pharmacy leaders need to develop a clear vision of the future. Non-pharmacists seem to be taking over dispensing functions, yet a societal need to make drug use more effective is still unmet.

Dr. Bill Edmondson reported on the P21 conference (shorthand for the **Pharmacy**

in the 21st Century Conference) in Williamsburg, Virginia, and distributed a summary of the conference published in *American Journal of Hospital Pharmacy*. (Appendix V) NC pharmacy leaders, legislators and third party payers will be assembled for a follow-up on this conference. A preliminary schedule for a seminar, "Pharmacy in the 21st century: Is North Carolina Ready?" was presented. The program, sponsored by Glaxo, will be held April 19. (Appendix VI)

An overview of **proposed changes in Board regulations** was presented for information purposes. Proposals for amendment will be considered for rules on Definitions (Eligibility of Foreign Graduates for Licensure), Experience in Pharmacy, Administrative Provisions and Responsibilities of Pharmacist-Manager. Proposed new regulations will be considered for Fax Transmissions of Prescription Orders, Devices, Nuclear Pharmacy and Sterile Pharmaceuticals. (Appendix VII) Four public hearings are scheduled in March. Hearings will be held at the Institute of Pharmacy, 109 Church Street in Chapel Hill at 7 PM on Monday, March 19, 1990, and at 2 PM on Tuesday, March 20, 1990. Two other hearings will take place at the Sheraton Airport Plaza in Charlotte on Tuesday, March 27, 1990 at 10 AM and 7 PM.



Lori Anderson, June McDermott and Steve Caiola during a lull in the discussions.

The Forum heard news of a policy instituted by one of the chains for **civil restitution for shoplifting**, a proposed bill to ban **sale of OTC drugs at flea markets**, and problems with the sale and rental of **durable medical equipment** resulting from a new company taking over Medicare.

Forum participants were shocked by a report of a 1986 NCBP investigation of a **salvage operation involving prescription drugs**. A veterinarian near Charlotte continues to buy salvage drugs from trucking firms, and sell them to any buyer; this "wholesale" operation uses incredibly substandard storage and recordkeeping procedures. The NCBP and FDA are unable to prosecute because of the lack of regulations on wholesale drug companies. Participants recommended that the legal affairs committees of NCPHA and NCSHP work with NCBP to ameliorate this intolerable situation.

New business items included announcements regarding the need for funding of the **PRN Program**, NCSHP's reaction to the

Sandoz Clozaril Patient Management System, and publication of a new **DESI list**.

Attending the Forum were: **NCBP**-William Adams, William Biggers, Al Lockamy, William Randall, Harold Day, Whitaker Moose, Jack Watts, David Work; **UNC**-Lori Anderson (student), Steve Caiola, George Cocolas, Wayne Pittman, John Mackowiak, June McDermott, Tom Miya; **Campbell**-Bill Gentry (student), Ron Maddox, Dan Teat, Tom Wiser; **Manufacturers**-Bill Edmondson, Joe Whitehead, John Zatti; **Wholesalers**-Keith Elmore, Jim Meehan, Don Peterson; **Chains**-Jimmy Jackson, Gary Judd, Jim Rotsart; **State Medical Assistance Program**-Benny Ridout; **NCPHA**-Frank Burton, Steve Dedrick, Betty Dennis, Kathryn Jefferson, Al Lockamy; **NCSHP**-Cindy Bishop, Bruce Canaday, Fred Eckel, Sandra Hak, Jim McAllister, Tim Poe.

Sandra H. Hak, PharmD
Editor, *NCSHP Newsletter*

Note: Appendix items available on request.



Coffee breaks made the long sit-down sessions bearable. Bill Gentry, Frank Burton, Jimmy Jackson, Gary Judd are seated. Standing and talking are Dan Teat, Bruce Canaday, Fred Eckel, Bill Edmondson and Jim McAllister.

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COST-EFFECTIVE FORSENIC QUALITY DRUG TESTING

By Arthur J. McBay, Ph.D.

Presented at the 108th NCPHA Annual Convention, Asheville, NC, May 18-21, 1988. The opinions expressed are those of the author, Arthur J. McBay, Ph.D., Chief Toxicologist, Office of the Chief Medical Examiner and Professor of Pathology and Pharmacy, University of North Carolina, Chapel Hill, NC 27514.

Urine and blood can be tested properly and accurately for drugs of abuse. The results can be of value when interpreted properly. Blood testing which is more expensive and is available in fewer laboratories is more temporal and can reveal more information than urine testing.

The finding of a drug in urine means that the person has ingested the drug at some time if no mistake is made in the testing procedure from the time the urine is voided until the results from the time the urine is voided until the results are interpreted. The impossibility of correlating blood or urine drug concentrations with driving impairment has been reported in a consensus panel report.¹

A 1984 survey has been repeatedly cited as evidence of the economic cost to society of drug abuse and of the need for testing workers.² The economic cost to society in 1983 was estimated to be about \$116 billion for alcohol abuse and \$60 billion for other drug abuse. The costs cited for drug abuse are greatly overexaggerated.³ I estimate the cost of other drug abuse at less than 10% that of alcohol abuse.

Limited testing, principally for marijuana use, that was performed by the military services from 1983 to 1985 was reported to have cost about \$175 million per year.⁴ During the three year period 51,000 service personnel were discharged at an average cost of about \$22,000 to replace each person discharged.⁵ Using these estimates the total

program costs about \$1.5 billion for the three years. It costs about \$200 to test a urine specimen of an NCAA athlete.⁶ I have been unable to find any other estimates of the costs of other government or of private sector testing programs. I have seen no evidence that any of the urine testing programs have had a beneficial effect on the health, safety, or productivity of the armed services or any other group tested.

Transportation accidents and fatalities have been blamed on drugs but in most cases the only drug found has been alcohol. The probable cause of the recent crash of an

Limited testing, principally for marijuana use, was reported to have cost about \$175 million per year.

Amtrak passenger train into the rear of a train of three Conrail locomotives was reported

to be due to the failure, as a result of impairment from marijuana, of the Conrail engineer to stop his train.⁷ The engineer tried to stop when he saw the red signal. The drug testing was flawed. Specimens were obtained about 5, 8, and 90 hours late. Since neither THC or alcohol was found in the blood of the engineer, the finding of "impaired at the time of the accident from the effects of marijuana possibly combined with the effects of alcohol the night before the accident," is not scientifically supportable.¹

This train crash and many others should not have occurred if the signals were operating properly and the Conrail locomotives has been equipped with the automatic train control (ATC) system that had been available since 1978 and was recommended for all trains using the heavily scheduled and high speed Northeast Corridor.

Two commercial airline pilots who were impaired by alcohol were discharged. One who was assisted into the cockpit by two crew members, "tested positive for alcohol" at the end of the flight.^{8a} Both were allowed to be reinstated after rehabilitation. Breath

Continued on page 10

DRUG TESTING

testing for alcohol could have prevented these pilots from flying impaired.

Random testing does not reveal those who might occasionally use a drug nor does it prevent a person from using a drug after being tested. Daily testing would be needed to accomplish this. Testing immediately before starting a safety related task might insure that the person has not used the drugs for which properly conducted analyses were made but this is expensive and logistically impossible except for the one drug that has been related to most crashes and performance impairment, alcohol. Alcohol testing can be noninvasive, inexpensive, and accurate. Breath can be tested with minimal training, results are immediately available and interpretable, and inexpensive instruments can provide tests at less than \$1 each.

Certification of drug testing laboratories which is about to start, should improve the programs but it will not guarantee that the results of inadequate tests won't be reported and interpreted improperly. Unless urine specimens obtained from subjects taking drugs are used in proficiency testing programs, the ability of laboratories to correctly analyze actual specimens will not be tested. Laboratories are reporting the identification and quantitation of drugs at concentrations lower than those for which they have demonstrated capability of identifying and quantitating. A private employer is not required to obtain a confirmatory test or to use a certified laboratory. At the present time I know of no laboratory doing workplace drug testing that I could unconditionally recommend for urine or blood testing for the wide variety of drugs that are available to the employed and unemployed.

Most of the workers whose urines are tested have no signs, symptoms or other evidence of drug use or impairment. Decisions are based on the results of tests on one specimen obtained, controlled, tested, and preserved for the employer. The other speci-

men should be labelled, sealed and preserved by freezing, if necessary. When the first specimen tests positive and the worker challenges the results, the second specimen could be divided equally into two containers, one being given to the employer, the other to the employee or his representative. Both the employer and employee could have aliquots of the specimen tested independently by qualified analysts. This procedure could solve many of the problems that arise from testing a single specimen, such as: chain of custody, mislabelling, specimen switching, contamination, carryover, instrumental, technician and reporting errors.

If it could be proven that drugs other than alcohol were responsible for adversely affecting health, safety, and performance of a significant number of workers, and that drug testing could prevent or solve such a problem, then the use of testing programs should be weighed against the infringement upon the personal rights of the worker. I know of no plans to test those most likely to be using drugs, the unemployed.

It is my opinion that random drug testing is a waste of time and money, is counterproductive, and can create a false sense of security.

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The Way We Were

This new column will feature past events and people in the history of Pharmacy in North Carolina. If you would like to share some of your memories with us, send your stories and photographs to: Kathryn Kuhn Jefferson, Managing Editor, The Carolina Journal of Pharmacy, P.O. Box 151, Chapel Hill NC 27514-0151.



Featured here is the group of pharmacists from North Carolina and the NCPHA who chartered a Piedmont Airlines flight from Winston Salem to visit Eli Lilly and Company in Indianapolis, October 11 through 13, 1959. Over one hundred persons were on the flight. At that time, this was the largest chartered flight to ever visit Eli Lilly and one of the largest charters in the history of Piedmont Airlines.

Material supplied by W. Seymour Holt, Vice President and General Manager, Dista, Indianapolis.



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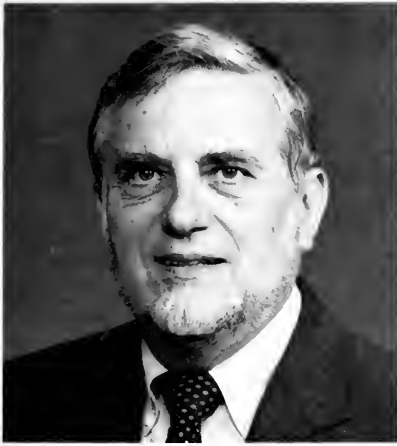
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LETTING PROFESSIONALS GO



CURTIS P. MCLAUGHLIN is Professor of Business Administration in the School of Business and Professor of Health Policy and Administration in the School of Public Health at the University of North Carolina at Chapel Hill. He received his masters and doctorate degrees in Business Administration from Harvard University Business School.

This is the tenth in a series of articles for professionals who manage and managers who lead professionals, and those who are both. Pharmacists operate with one license, but fill many different roles in hospitals, chain stores, individually-owned stores industry and educational settings. Along the way, pharmacists need a variety of management skills. These articles take a broad perspective on management concepts we hope you will be comfortable using.

Earlier articles in this series have focused on professionalism, participative management, motivation, creativity, and the joining up process. Yet sometimes you reach the point where there is no real fit between your expectations and the performance of the employee. It may be a selection error, an impaired employee, or shifting needs on either side of the psychological contract. It also can be that business conditions call for a reduction in employment. Firing is a task that few of us who have experienced it would ever want to do again. It is especially hard with professionals who see themselves as responsible, autonomous, self-motivated individuals.

It Ain't Easy

If you have ever fired anyone or ever been fired, you probably know how not to do it. I

was first fired at 13 after my employer, a local printer, witnessed a near miss when my hand got caught in a printing press and realized that he would be in real legal hot water in case of a serious injury. I had to lay off a number of laboratory support workers for Union Carbide during the 1957-B recession. If you have not experienced it, it is hard to get the feelings across. One professor at Harvard waited until the new tense M.B.A. students first proposed firing an employee. He then wheeled around and said to the recommender, "Miss Adamson pack up your books and get out of this class right now." When she protested, he replied "You heard me, get out of this class right now." As the student tearfully reached for the door handle, he would say, "All right now, you can come back. But you all know what it's like to be fired."

Throughout the first year of my M.B.A. program the class avoided firing anyone. But near the end of the personnel management course, we faced a bad case. Finally, one normally reticent student volunteered, a former LSY and LA Rams lineman from Meridian, Mississippi. "This is the kind o' case ma mammy was talkin' 'bout when she said 'Yo jes' cain't make chicken salad out o' chicken manure.'" The professor agreed.

Be Prepared

If you act out of anger in firing someone, you probably will make a severe mistake. It might even lead to a costly legal wrangle, since issues can be raised concerning due process or discrimination. Think through the following series of steps before firing anyone. They are:

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LETTING PROFESSIONALS GO

Know the rules
Know all the whys of your decision
Get the facts
Find out where the employee's head is
Be prepared for surprise
Get the boss' support
The bargaining goes on
Manage the perceptions of the other employees.

Know the Rules

Every substantial organization has a procedure for terminating poorly performing employees. It usually involves a series of warnings and pre-firing penalties. It may provide for summary dismissal for such reasons as stealing and drunkenness on the job. While these rules usually apply to hourly employees, they also form a backdrop for the handling of professionals.

If you work in a public agency or a union-

ized company, these procedures may be very cumbersome. Don't give in to the bureaucracy however. I have often taught a case involving widespread insubordination to state government manager. Before the case is assigned, we bring up the topic and they all complain loudly about how it can't be done. Later we give them the case. As they discuss it, all the baseball bats, brass knuckles, and whips come out. Where there is a will, there is a way. One university used to subject unproductive tenured faculty to teaching mornings on one campus and the same evenings at another 120 miles away.

You must show that you are willing to use the sanctions available in the system early regardless of whether or not you win. The new supervisor must show a willingness to start a proceeding against an obviously weak employee to gain credibility - to show the will to face anger, to sit through boring hearings, and to complete all the paperwork steps necessary.

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Know All Your Own Reasons for the Step

Review in your mind all of the evidence that has led you to this decision. Question yourself about the biases in yourself that might be behind the decision. Does this person remind you of an unpleasant aunt? Have you gone as far with this person as you have gone with others? Is this person a risk to safety, to productivity, to corporate image? Are their weaknesses evident to others as they are to you? Check it out.

Get the Facts

The previous step should have involved the gathering and corroborating of the facts. This will not be a big job if you already have applied lesser sanctions leading up to dismissal. Productivity, productivity standards, error reports and prior warnings should all be documented.

Find Out Where The Employee's Head Is

How does the employee feel about his or her current performance? Are there personal or health problems that should influence the manner in which the action is implemented? All of these are important considerations about the how, it not the what, of a personnel action. In a surprising number of cases the employee is as upset by their performance as you are and may only need a confirming nudge to push them out.

Be Prepared for Surprise

Unless the employee has a specific problem like substance abuse, the employee is very likely to be surprised by the proposed action, especially during layoffs. Each employee has to defend their own ego. We seldom talk to employees about their relative standing among the incumbents and the performance appraisal process is not feared for layoff situations. Performance appraisals are not effective for giving criticism or feedback, since they are so divorced in time from actual performance. They work best when focused on goal setting. Setting goals implicitly signals a future with the

firm. While some goals, like sales volume for clerks, can be comparative, the process usually focuses on personal development and individual goals. Therefore, it is unlikely that employees will come away from performance appraisals with the notion that their jobs are insecure.

Get the Boss' Support

Once the employee has accepted the dismissal, there is the further stage of bargaining. You can bargain too. You can offer a letter of recommendation in return for a quiet departure. You have a number of possible ways to explain the departure to co-workers. With professionals it is often wiser to allow them to resign, even when you force it, than to announce a dismissal. The latter reflects on the competence of your selection process and can lead professionals to react defensively on behalf of one of their own kind. The dismissed employee would also like to avoid that cloud over their head too. It helps protect their professional identity. Obviously, the sooner the departing professional is off the premises the better, although that isn't as important as some companies think it is, because the telephones keep working.

Manage the Expectations of Those Who Remain

There is no way that you can remain a friend of someone you fire. To save their own egos most people blame someone else for their problems. The key is to make sure that those who stay behind, those that still work there, perceive the process as equitable for them. You are best off if they concur with your decision. Even if they disagree, they must still be convinced that the process is one that will treat them fairly in the future.

Therefore, it might not hurt to find out how they feel about that individual's relative performance before you act. When you do act you need to keep them informed of the procedure you followed and the reasons for the action. Remember, you probably won't have to face the one you fire, but you will have to face those that remain every day. ●

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DO AS I SAY, NOT AS I PAY

by Dennis B. Worthen, Ph.D., Director
Pharmacy & Government Relations,
Norwich Eaton Pharmaceuticals

How many times as youngsters did we hear parents and others in positions of authority over us exclaim, "Do as I say, not as I do." Parental lectures about smoking, drinking, and staying up late were frequently legitimized with such an admonition.

Third Party Parsimony

Now we are hearing the very same refrain in our professional and business lives. This time it is not a parent, but a third party payer or public policy administrator who admonishes "Do as I say, not as I pay." Too many third party payers are promising the best in pharmaceutical products and services, while indicating their willingness to pay only for the cheapest. While pharmaceutical products and services, including compliance counseling, are believed to be cost effective, only the cheapest product and service find favor in the payer's purse.

An increasing percentage of pharmaceuticals are paid for by a third party. Nationally, 18% of all retail prescriptions are paid for by Medicaid programs; over 15% are covered by other card programs. In 1991, prescription benefits for 32,000,000 Medicare beneficiaries will be dictated by federal guidelines.

Sufficient data exist that prove pharmaceutical products and services, combined with compliance and counseling, are cost-effective. They also cost. What third parties tell their beneficiaries is that "they deserve the best products and services available." As American citizens, we all believe this is our right. The difficulty comes in paying for that right. A recent Rite Aid study shows that it costs an average of \$5.20 to fill a third party prescription. Medicaid, however, allows a dispensing fee ranging between \$2.50 and \$4.50 depending on the state. The Medicare Catastrophic Coverage Act of 1988 will allow

a fee of \$4.50 for participating pharmacies. (This is 1988 dollars which will be much lower in value in 1991 due to inflationary discounting.)

Cost-Effective Treatment

Pharmaceutical products and services are the most cost-effective therapeutic modalities available to the American public. Their contribution to public health just in our lifetime is overwhelming. Infectious diseases are no longer the killers they were in the 1930s. Tuberculosis sanatoria are closed. Inpatient mental hospitals are only a fraction of the size they were in 1960. Ulcer patients no longer face surgery routinely, and many cardiovascular disease patients return to productive jobs rather than wait for death as coronary cripples. The real proof of success: Americans' life span has increased more than 10 years since 1940. During the period that all of these "miracles" occurred, the cost of pharmaceutical products decreased from 16 cents of every health care dollar in 1950 to 7.5 cents in 1986.

Pharmacist counseling and patient compliance are critical components in the proper use of pharmaceutical products and services. If products are not used correctly, they can become inordinately expensive. Lack of compliance leads to unnecessary use of health care with all of the costs attendant to such misuse. These costs may be extra physician services, hospital care, additional pharmaceuticals, and even death. Whoever said the most expensive prescription is the one that isn't taken correctly was a very knowledgeable professional.

Third party providers have promised their clients the best in professional services and pharmaceutical products, but many have indicated their intent to pay the providers for only the cheapest. Can we allow third parties to continue telling us, the discoverers of medicines, the providers of service: "Do as I say, not as I pay"?

Reprinted with permission from the June 1989 issue of Pharmacy Times.

BREVARD PHARMACIST WINS SCHERING SWEEPSTAKES

William J. "Bill" Thrasher Jr. (left), a pharmacist at Revco in Brevard, joined 24 other pharmacists and their guests on a week-long Caribbean cruise aboard the Star Princess in January. Thrasher was a winner of the Schering "Very Important Pharmacist IV" Sweepstakes promotion sponsored by Schering Corporation. Schering representative, Roger Williams (right), presented the award to Thrasher.

The sweepstakes is a promotion designed to thank pharmacists for recognizing the quality and effectiveness of Schering's leading OTC products. This is the fourth year the contest has been run, rewarding pharmacists with a week-long vacation to such spots as London, Bavaria and Spain.

Bill Thrasher, a 1979 graduate of the University of South Carolina School of Pharmacy, is a member of the Western North Carolina Pharmaceutical Association and is active in his community. He serves a Pack Committee Chairman of the Cub Scouts and is a member of the Etowah Baptist Church.

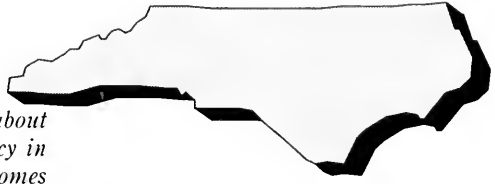


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Robert Rittase, Charlotte
Elizabeth Rittase, Charlotte
Benjamin Barry, Fayetteville
Paulette A. Deal, Statesville
C. Mac McGee, East Bend
William Amundsen, Murphy
James A. Boyd, Buies Creek
Barbra Beth Burkot, Elm City
Delica O. Carter, Raleigh
Kevin Lee Kline, Charlotte
Larry C. Blanton, Greensboro

Beth McBrayer, Wilmington
Karen G. Sampson, Charlotte
Angelo George Vlahos, Winston Salem
Joel Pressman, Durham
Warren S. Binnick, Charlotte
Perry Diamaduros, Charlotte
Philip S. Goldstein, Chapel Hill
Valerie Kelly Guenther, Cary
Lorraine Hiester, Wescosville PA
Mitch Miller, Augusta GA
Dorothy Nance, Greenville
Dianne L. Sellars, Burlington
James F. Smith, Northport NY
Ray C. Gaddy, Clinton
Adolphine Vernick, Greenville
Barbara Medlin Horne, Greensboro
Donald Miller, Peekskill NY
Thomas L. Schendel, Goldsboro

AROUND-THE-STATE



This column features news briefs about persons and events related to pharmacy in North Carolina. The Journal staff welcomes any contributions you wish to make to this column. Photos are also welcome. Send us your news!

Weddings

Mae Lloyd Jackson and Patrick Donald Ross II, both of Raleigh, were married September 9, 1989 at Engwood Methodist Church in Rocky Mount. The bride is a 1983 graduate of the UNC-CH School of Pharmacy and is a pharmacist with Kerr Drugs. The groom is a graduate of NC State University and is a biologist with Natural Systems Associates of Raleigh where the couple now lives.

Kelly J. Banther of Dana and **Ronald Caldwell Morris** of Hendersonville were married September 9, 1989 at the Refuge Baptist Church in Dana. The bride is employed by Wal-Mart of Hendersonville and the groom, a 1985 graduate of the UNC-CH School of Pharmacy, is employed by Revco Drug Store in Hendersonville as Pharmacist-Manager.

Rebecca Norma Cook and James Adam Allen Jr., both of Wilson, were married November 4, 1989 at Grace Missionary Baptist Church in Wilson. The bride is a 1988 graduate of the UNC-CH School of Pharmacy and is employed at Bisette's Drug Store in Wilson. The groom is self-employed as a building contractor.

Christine Marie Kurtz and Mark Howard Pittman were married August 26, 1989 at the Sacred Heart Cathedral in Rocky Mount. The groom is a graduate of UNC-Chapel Hill and is an associate QA chemist at Glaxo Inc. The bride is a 1988 graduate of the UNC-CH School of Pharmacy and is employed as a pharmacist at Wake Medical Center.

Leigh Ann Propst and H. Hazen Blodgett III were married November 18, 1989 at Miller's Lutheran Church in Hickory. Propst,

a graduate of the University of South Carolina School of Pharmacy, is currently employed by Catawba Memorial Hospital as a staff pharmacist. The couple is residing in Roanoke Rapids.

Julienne Kim Krainiak and Richard Marlowe Kirk were married October 21, 1989 at Holy Infant Catholic Church in Durham. Krainiak is a graduate of the UNC School of Pharmacy and is currently in the Pharm. D. program at the School.

Cynthia Deann Pike wed William Landis Owens II on September 23, 1989. Pike is a UNC School of Pharmacy graduate and works for Revco Discount Drug Centers in Carrboro.

Karen Stacy Popovich and **Keneth Samuel Latta** were married November 25, 1989. Both are UNC School of Pharmacy graduates. Latta is a clinical pharmacist at Duke University Hospital and Popovich attends the UNC School of Medicine.

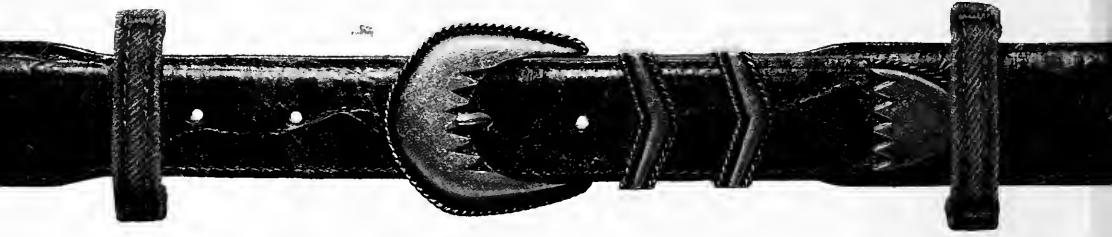
Mae Lloyd Jackson and Patrick Donald Ross II were married September 9, 1989. Jackson is a UNC School of Pharmacy graduate and is employed at Eckerd Drug in Raleigh.

Colleen June O'Linn and **Charles Mercier Davis Jr.**, both of Winston Salem were married November 11, 1989. Both are UNC School of Pharmacy graduates; O'Linn works for Eckerd Drugs Winston-Salem and Davis works for Crown Drug Stores in Winston-Salem.

Deanna Catherine Watkins and Don McCoy Mabe Jr. were wed on October 21, 1989. Both are UNC School of Pharmacy graduates. Watkins is a pharmacist at Kmart in Laurinburg; Mabe is Assistant Director of Pharmacy at Scotland Memorial Hospital in Laurinburg. The couple resides in Laurel Hill.

Continued on page 21

Millions of Americans are being asked to look out below



Introducing the GSE™

Across the country, sexually active adults will soon be encouraged to do a special health check called a GSE... a genital self-examination. A simple examination to check for potential signs of a sexually transmitted disease (STD).

The GSE is the heart of a nationwide campaign to heighten public awareness of STDs. This program is sponsored by Burroughs Wellcome Co. in conjunction with major medical associations.*



Sexually active adults will be urged to send for a free guide that explains how to perform a GSE. The guide discourages self-diagnosis and encourages seeing a healthcare professional if anything suspect is found.

While STDs are currently regaining their foothold on the American population, the GSE program offers a promising outlook for reducing their spread.

*The American Academy of Dermatology, the American Academy of Family Physicians, the American College of General Practitioners in Osteopathic Medicine and Surgery, and the American Osteopathic Association.





Appointments

Al Mebane was elected President Elect of the National Council of State Pharmaceutical Association Executives (NCSPA).

Honors, Awards, Citations

Congratulations to **David Griffin**, son of Lorraine and **Sandy Griffin** of Burlington and a 1983 graduate of the UNC-CH School of Pharmacy who was selected by Upjohn as a recipient of their "Great Performer" award late in 1989. "Great Performers" is an employee recognition program focusing the attention of Upjohn's North American Pharmaceutical Operations members on extraordinary efforts within the company. **David Griffin**, currently Medical Sciences Liaison-Education, was cited for his creativity and willingness to try new ideas. He is now living in Knoxville, Tennessee.

Al Mebane was elected to the Phi Lambda Sigma, National Pharmacy Leadership Society.

In the News

The North Carolina Academy of Family Physicians, upon recommendation of Dr. Charles Boyette, sent **Aubrey Hollowell**, Belhaven, a letter of appreciation for his support of Family Practice over the past thirty years. The letter, which appeared in Hollowell's local newspaper, stated, "As a pharmacist, you have been in close contact with dozens of Family Physicians over these years and have always been helpful and supportive in rendering quality service to your customers who are our patients. Thank you for your unselfish devotion to quality health care for our people. Family Medicine is appreciative of your contribution to im-

proved patient care, signed, Frank Leake, M.D., President, NC Academy of Family Physicians".

The **Goody's Manufacturing Company**, a Winston Salem Company specializing in headache remedies and other analgesics, announced the purchase of Mayrand Pharmaceuticals of Greensboro. Mayrand was founded in 1941 and provides Goody's with access to new markets. Robert G. Boulton, former vice president for Goody's, will serve as president of Mayrand. Mayrand employs about 50 persons and Goody's has 65, so the work force has almost doubled according to Goody's president Thomas H. Chambers.

Affiliate News

New officers for the **Mecklenburg Pharmaceutical Society** for the 1990 year are: President—Tommy Dagenhart, First Vice President—Susan Swepson, Second Vice President—Daryl McCollum, Secretary—Brent Clevenger, Treasurer—Debra Smith.

The **Crystal Coast Pharmaceutical Association** has been established, comprised of pharmacists in Cartaret County, with invitations extended to those in Craven and Onslow Counties. Charter officers are: President—George (Buddy) Peal, Vice President—Jane Archer, Secretary—Merritt O'Brian, Treasurer—Lynwood Daughtry, Executive Committee Members—Suzanne Alford, Larry Good, Mark LaRoque.

The **Guilford County Society of Pharmacists** met Sunday, January 14 for the regular monthly meeting in the AHEC Room of Moses H. Cone Memorial Hospital. Speaker for the evening was Victor J. Strecher, Assistant Professor, Department of Health Behavior and Health Education, UNC-CH School of Public Health who spoke on "Smoking Cessation." Dr. Strecher's talk, sponsored by Marion-Merrell Dow, was a timely subject in view of the recent implementation of North Carolina's most stringent smoking ordinance, in Greensboro. Nominations for 1990 officers were presented to be voted on at the February 11 meeting.

Continued on page 37

1990 NARD SUMMER INTERNSHIP PROGRAM

NARD, the national association representing independent retail pharmacy, with educational support from the Burroughs Wellcome Company, is seeking applications for its 1990 NARD Summer Internship Program. This internship offers a pharmacy student an excellent opportunity to learn and work inside a national pharmacy organization while gaining 400 externship/internship hours toward licensure.

Beginning in June 1990, the NARD summer intern will spend ten weeks at NARD headquarters just minutes away from Washington, D.C. and receive a stipend. The intern will gain hands-on experience in NARD's Departments of Professional Affairs, Operations, Communications, Conventions and Meetings, Government Affairs, Membership Services, Home Health Care,

and the Management Institute. The intern will be expected to complete a project of interest to the association membership and will attend at least one professional meeting. **To apply, submit by April, 1990:**

1. A resume or curriculum vitae
2. A letter of application elaborating on one or more goals you wish to accomplish as the NARD Summer Intern and how this experience may benefit you professionally
3. A letter of recommendation from your state's pharmacy association executive
4. A letter of recommendation from your pharmacy school's dean

Send all applications to:
NARD Summer Internship Program
205 Daingerfield Road
Alexandria, VA 22314



NC Wholesaler Named Syntex "Regional Wholesaler of the Year." North Carolina Mutual Wholesale Drug Company has been named Syntex Regional Wholesaler of the Year. Celebrating the award are (Left to right): John Egger, Syntex Regional Director; Doc Tilley, NC Mutual Wholesale; Casey Hamilton, Syntex District Manager; Don Peterson, Executive Vice President, NC Mutual Wholesale; Judy Pope, Syntex and John Bivins, NC Mutual Wholesale.

THE CAROLINA JOURNAL OF PHARMACY RECOGNIZES 1989 ADVERTISERS

The Carolina Journal of Pharmacy is supported in a large way by its advertisers. These advertisers recognize the importance of getting their message to the pharmacist—the medication expert. These advertisers also recognize the importance of pharmacy associations and support them through their advertisements. Far too many companies bypass state pharmacy association publications and advertise extensively only in the publications of state medical groups and national pharmacy associations. NCPHA is thankful that the companies listed below are supporters of pharmacy and NCPHA. You should express thanks to the representatives of these companies for their continued support of pharmacy in North Carolina.

Campbell University School of Pharmacy

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Spear Associates

Store Fixtures & Planning, Inc.

*The Upjohn Company

Woodhill Chemical Treatment Center

* NCPHA extends a *special* thanks to these companies for the full page advertising we receive from them each issue. These companies are the backbone advertisers of *The Carolina Journal of Pharmacy*.

CALENDAR OF EVENTS FOR 1990

March 22	24th Annual Socio-Economic Seminar, High Point
April 7	Parents Day, Campbell University School of Pharmacy
April 8	UNC School of Pharmacy Alumni Spring Reunion
May 7	Campbell University School of Pharmacy Graduation
May 7-8	NARD Legislative Conference
May 13	UNC School of Pharmacy Graduation
May 23-26	NCPHA Annual Convention, Research Triangle Park
June 3-7	ASHP Annual Meeting, Boston, MA
June 25-26	NC Board of Pharmacy Licensure Examination, UNC School of Pharmacy
July 17	Woman's Auxiliary Board Meeting
Sept. 6-9	NCPHA 1st Annual Seminar on "Issues in Pharmacy Today", Grove Park Inn, Asheville
Sept. 16	Pharmacy Practice Seminar, Wilmington
Sept. 24-25	NC Board of Pharmacy Examination (Location TBA)
Nov. 21-25	NARD Annual Convention, Nashville
Dec. 2-6	ASHP Midyear Clinical Meeting, Las Vegas

NORTH CAROLINA BOARD OF PHARMACY NEWS

Pharmacist Members: William R. Adams Jr., Wilson; Harold V. Day, Spruce Pine; W. Whitaker Moose, Mt. Pleasant; William H. Randall Jr., Lillington; Jack G. Watts, Burlington;

Public Member: William T. Biggers, Asheville

Executive Director: David R. Work, P.O. Box 459, Carrboro NC 27510

Telephone # 919-942-4454

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Barry, Thomas Andrew-Charlotte
Boudreaux, Marilyn Celeste-Winston
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Bowen, Melodie Dawn-Ayden
Bunch, Anne Marilyn-Windsor
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Hudson, Jill Stone-Raleigh
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Hyer, Kristen Michelle-Chapel Hill
Jackson, Hope Leigh-Rocky Mount
Johnson, Michelle Jackson-Winston Salem
Keith Jr., Jimmy Dale-Durham
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Kitchens, Jennifer Jumper-Charlotte
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Lemelin, Jeffrey Lee-Charlotte
Li, Xiaomei-Chapel Hill
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May, Carla Gillispie-Chapel Hill
McCann, Carolyn Ann-Elmira NY
McClain, Jon Patrick-Winston Salem
McHone, Elizabeth Anne-Raleigh
McIver, Vicki Lynn-Winston Salem
Mintz, Chandra Denise-Greensboro
Monroe, Kenneth Patrick-Carrboro
Nolin, Thomas Douglas-Chapel Hill
Ruby, Mark Anthony-Oil City PA
Schutrum, Gregory Todd-Horseheads NY
Sellars, Dianne Lynell-Burlington
Seufert, Roy Joseph-Fayetteville
Smith, Roxanne Elaine-Havelock NC
Strickland, Rhonda Lynn-Charlotte
Tucker, Linda Catherine-Mooresville
Usher, Jerry Lionel-Raleigh
Veon, Richard Arden-Charlotte
Vlahos, Angelo George-Winston Salem
Waddell, Wendy Jo-Hendersonville
Walters, Lori Penelope-Lumberton
Waters, James Augustus-Harrisburg
Watson, Gindy Leeanne-New London
Watts, Claire Suzanne-Wilmington
White, Lisa Michelle-Charleston WV

FROM THE MAILBAG

February 19, 1990

Mr. Richard Hamber, Jr.
Metropolitan Life Insurance Company
629 Green Valley Road, Suite 306
Greensboro, NC 27408-7796

Dear Mr. Hamber:

Please accept this letter as authorization to amend the MediMET Drug Plan in three ways:

1) Reimburse the dispensing fee for outpatient prescription drugs dispensed in North Carolina on the same basis as the State Medicaid program effective January 1, 1990;

2) Reimburse the ingredient cost for outpatient prescription drugs dispensed in North Carolina on the same basis as the State Medicaid program effective April 1, 1990; and

3) Allow MediMET pharmacists the Average Wholesale Price (AWP) or actual cost, if higher, in the event of an audit Burroughs Wellcome prescription drug transaction occurring prior to April 1, 1990. Thereafter, audits should be based on the State Medicaid reimbursement formula.

Employees, retirees, and eligible dependents participating in the MediMET program outside of North Carolina shall remain under the existing terms of the Medi MET Drug Plan.

Thank you for your prompt handling of this matter. If you have any questions or require clarification, please contact Craig L. Drake at 919/248-4397.

Sincerely,

Kenneth W. Kidd
Director of Employee Benefits
Burroughs Wellcome Co.
3030 Cornwallis Road

February 1, 1990

Dear Chief Executive Officer of BB&T,

After reading your advertisement in the Gastonia Gazette, I was prompted to write this letter to let you know my feelings about your "Club 50".

For many years, pharmacists all across the state have been working desperately to put a stop to mail order pharmacy services as you advertise in your "Club 50".

It is this kind of service that will make it hard for the independent pharmacy to survive in the future.

It's not only you, but other organizations are doing the same thing. It seems that offering banking services are not enough that you have to impose on the income of other businesses in an attempt to be the "biggest bank in the neighborhood".

One of the biggest reasons we as pharmacists are fighting the mail order prescription services is because it takes so many dollars out of the state, and I'm sure your service will do the same. I'm sure you, as a North Carolina based bank, would want that revenue to stay in our state.

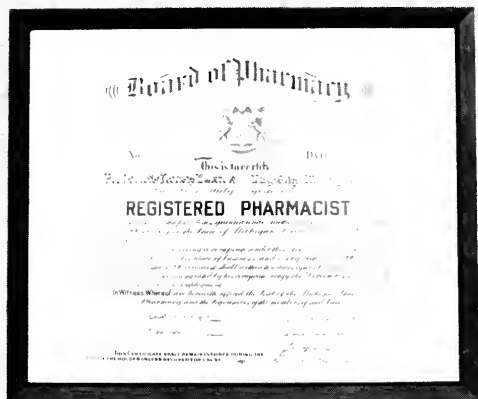
Our business, Medical Center Pharmacy located in Gastonia, has been banking with BB&T for about ten years. I personally have several accounts with BB&T, and I'm sure there are many pharmacies across the state which bank with you as well. I know they share the same feelings I do about "Club 50" pharmacy services.

It was my intention in this letter to let you know that I am deeply stunned in your desire to attract new customers to your bank at the expense of every pharmacy in North Carolina. As a pharmacist, I never plan to compete with you by offering banking services in my store.

I shall relay my message and feelings about your "Club 50" pharmacy services to

Continued on page 37

Two Things You Need To Run a Successful Pharmacy:



Multi-user, multi-tasking system • Frequent, automatic price updating
Accurate, easy third party claims processing • Patient drug interaction checks
Private charge account processing • Back-up record protection
On-line verification and adjudication

Compute-Rx

SYSTEMS & SERVICES FOR PHARMACIES

4421 Waterfront Drive • Glen Allen, Virginia 23060

Community Practice • Hospital Practice • Long-Term Care • Point-of-Sale



DICKINSON'S PHARMACY

by Jim Dickinson

This feature is presented on a grant from "Dickinson's Pharmacy —The Independent Voice," in the interest of promoting the open discussion of professional issues in pharmacy. Mr. Dickinson is the editor of Dickinson's FDA and Dickinson's PSAO industry newsletters and The Independent Voice, an 8-page practical monthly newsletter available from Ferdic, Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in this commentary as they are those of the author and not necessarily those of NCPHA.

The "efficient" pharmacy. From widely scattered places, this month brings different pieces of what might be termed "the search for the efficient pharmacy."

From California, bellwether for the rest of the country, comes this disturbing comment by pharmacy board interim executive officer Patricia Harris: "It has been the board's experience that when a prescription error has occurred, it was usually on a slow versus busy day and/or the pharmacist was the only person on duty (no other individual available to assist or check the pharmacist's work)."

From Australia, where pharmacists are fighting government efforts to close "inefficient" pharmacies, comes pharmacy's rebuttal — Pharmacy Guild testimony that 11 Rxs per hour is "overwork."

And from the pages of the Sasser subcommittee report to the U.S. Senate, on the safety and soundness of mail-order prescriptions, we find the testimony of National Rx pharmacists that they had a quota of 54 Rxs per hour. Some quit, rather than suffer the guilt of the probable consequences of dispensing under such pressure, and others were fired because of the errors they made.

National, of course, denies that it has or ever did have a "quota" system, but rather a

"goal" or "incentive program." However, it does not submit itself to public verification of that denial.

What is happening here? Are the three examples connected in any way? We think it is obvious that they are. In the case of the California pharmacy board executive's comment, the remark was made in the context of a pharmacy protest about quotas and dispensing speeds.

Presenting the results of a mass meeting of 80 pharmacists, the Pharmacists Planning Services Inc. had argued to the board that "immense pressure" is being exerted by chain employers to fill more prescriptions than is felt to be safe by pharmacy "professional standards."

The PPSI deputation wanted the board to establish "standards of practice" regulations that would set dispensing speed limits, among other things.

In the name of the board, Harris declined to do so, observing that the board's experience went exactly in the opposite direction. This is tantamount to saying that the more a pharmacy is like a modern, automated mail-order operation, the safer it is (i.e., high speeds, and someone who didn't fill it checking each prescription).

So we have this "search for the efficient pharmacy," without defining it. My American Heritage Dictionary defines "efficient" as "acting or producing effectively with a minimum of waste, expense, or unnecessary effort."

My knowledge of pharmacy, which reaches back to 1968, would suggest that this definition is inapplicable to the profession and dangerous if applied.

During PPSI's Standards of Practice Emergency Meeting, an overwhelming majority agreed that the pharmacy board

Continued on page 28

DICKINSON'S PHARMACY

should set limits on the number of prescriptions to be filled by pharmacists, in the interest of public safety. Consideration should be given to the number of technicians and pharmacists working in a given situation, and appropriate prescription numbers should be assigned, the meeting said.

Obviously, that number should not be a "quota" (or in Medco parlance, a "goal") for pharmacists to strive toward, but a maximum that is safely achievable by all, and not to be exceeded.

"The pharmacist should be able to determine what is a safe number of prescriptions to be filled in one day, not management, not hospitals, and not consumers," one pharma-

"Kaiser is an assembly line. One person fills the Rx, the other person checks it, and it's out the window."

cist told the PPSI meeting. A Kaiser Permanente pharmacist said no pharmacist should be expected to dispense more than 70 Rxs a day without assistance; anything over 80 Rxs a day should require a second pharmacist. But he said at Kaiser, additional pharmacists are not always assigned when the workload gets heavy.

"You have to produce at Kaiser or else you will lose your job," he said. "If you make a mistake you can lose your job, too.

"Kaiser is an assembly line. One person fills the Rx, the other person checks it, and it's out the window." A pharmacist at Longs said her managers insist on up to 200 Rxs a day per pharmacist.

Asked by PPSI to overlay regulatory standards of practice on such speeds, the pharmacy board's Harris passed the buck to the profession itself. "It is the board's opinion," she wrote PPSI, "that there is no compelling enforcement documentation to necessitate theregulation of practice standards as proposed by PPSI."

A cynic might see that the board no longer has a majority of independent pharmacists, which means that the majority consists of corporate and institutional members, including pharmacists from academe, which benefits from grants provided by corporate and institutional pharmacy — to say nothing of the job opportunities for graduates provided by those corporate and institutional pharmacies.

Additionally, the state's Republican administration is ideologically opposed to meddling in the affairs of big business (i.e., large chains and mail-order). Besides, drug prices would necessarily rise.

Unfortunately, like so many other pharmacy dilemmas, unless we can provide the dead bodies to prove our case, as the airline safety deregulators ultimately learned to their great cost, it seems little will be done.

In an effort to provide those bodies for pharmacy's (and society's) greater good, I have a small success to report — the journal of the nation's county coroners, *The American Journal of Forensic Medicine and Pathology*, is this month publishing my letter asking that all death certificates include the drugs taken by the deceased.

In it, I recite the Idaho death of Iris Hemmelman from a mail-order dispensing error and observe that millions of elderly practice polypharmacy with mail-order drugs that come in 90- to 180-day supplies without much supervision, and comment:

"The mere effort of completing this [Drugs Taken By Deceased] panel would necessitate some added inquiry into the issue of whether a prescribed medication might have had a role in the death. Also, being accessible for years to come, it might be a valuable research tool for a retrospective study of the drugs being taken by the elderly." ●

CORRESPONDENCE COURSE

SALT SUBSTITUTES AND SALT REPLACEMENT PRODUCTS



by **Thomas A. Gossell R.Ph., Ph.D.**
Professor of Pharmacology
and Toxicology
Ohio Northern University
Ada, Ohio



J. Richard Wuest, R.Ph., Pharm.D.
Professor of Clinical Pharmacy
University of Cincinnati
Cincinnati, Ohio

Goals

The goals of this lesson are to:

1. describe the medical uses for salt replacement and salt substitute products; and
2. discuss the limitations inherent in therapy with these products.

Objectives

At the conclusion of this lesson, pharmacists will be able to:

1. identify the uses for salt replacement and salt substitute products;
2. demonstrate an understanding of the precautions and warnings, adverse effects and toxicities associated with these products;
3. convert metric quantities of sodium into milliequivalents and vice versa;
4. exhibit knowledge on how to reduce dietary sodium intake by nonpharmacologic means; and
5. choose specific points for advisory consumers on the correct use of salt replacement and salt substitute products.

Consumers are generally aware of medical recommendations that they reduce their

dietary sodium intake since sodium is a well known risk factor in hypertension and vascular disease. Many OTC drug product labels, food labels, and recipes now list sodium values, and some manufacturers highlight the low sodium or salt-free content.

Many consumers are also aware that it is advisable to supplement their normal dietary sodium intake with salt tablets or salt supplement beverages during periods of heavy exercise and sweating in hot climates. While there may appear to be some contradiction in emphasis about the importance of these two extremes of salt intake, there is good reason for both.

There are two groups of OTC products that are of special interest for consumers who wish to follow either recommendation. These are the salt replacement tablets (Table 1) and salt substitutes (Table 2).

This article discusses the role of salt for oral therapy of heat-related illness, and the use of salt substitutes in sodium-restricted dietary programs. It highlights their uses and limitations, benefits and precautions. It also presents important information to convey to consumers interested in these OTC products, or in lowering sodium intake by non-pharmacologic means.

Continued on page 30

SALT SUBSTITUTES**Table 1**Representative OTC Salt
Replacement Products

Products (Mfr)	Dosage Form, Concentration
Sodium Chloride (Purepac)	Tablets, 650mg
Sodium Chloride (Various)	Tablets, 1 gm
Slo-Salt (Mission)	Tablets, slow release, 600 mg
Sodium Chloride (Lilly)	Tablets, enteric coated, 1 gm
Sodium Chloride (Lannett)	Tablets, 1.07 gm
Sodium Chloride (Lilly)	Tablets, 2.25 gm
Sodium Chloride with Dextrose (Various)	Tablets, 650 mg
Heatrol* (Otis Clapp)	Tablets, 635 mg
*Also contains KCl, 40.6 mg; Calcium phosphate, 31.5 mg, Magnesium carbonate, 9.1 mg.	

Salt Replacement

Heat-Related Illness. This is a major concern of persons who work or exercise in high temperatures. Such illness is not confined to remote tropical area, or even to the warm subtropical states within the U.S. Serious medical problems can occur in temperate zones as well. There are three clinical heat-related illness syndromes: heat cramps, heat exhaustion, and heat stroke.

Heat cramps are painful skeletal muscle contractions that result from excessive loss of sodium in sweat and urine. There is brief, often excruciating, cramping in muscles that have undergone extensive exercise. Cramping occurs more commonly in persons who are physically fit and well-acclimatized. They are most common at the end of the day, while walking, relaxing, or taking a cool shower. The painful paroxysms last a few minutes and disappear spontaneously.

Heat exhaustion occurs with continuous fluid and sodium loss. The body tempera-

ture increases and the blood pressure drops as a result of extracellular fluid and blood volume contraction. Subjective feelings of weakness and/or lassitude may result from concurrent loss of intracellular potassium.

Heat Stroke is the least common, but most serious heat-related illness. It occurs when the body temperature is raised above 105 to 106 F and the brain's heat regulating mechanisms become inactivated. Symptoms include weakness, headache, dizziness, and diminished sweating. If not treated, collapse, coma and death are common.

Heat-related illness results with one or more of the following conditions: (1) severely hot temperature, (2) high humidity, (3) extreme physical exertion, and (4) lack of acclimatization to the environment. Any person who is otherwise physically fit may still experience adverse effects to heat. Individuals at high risk generally have a history of heat intolerance or skin disorders, or are physically unfit and/or overweight.

The primary concern is that extensive fluid and sodium loss occur secondary to excessive sweating, and this is often aggravated by poor electrolyte replacement. Taking salt tablets to minimize dizziness and/or fainting during hot weather is usually safe when properly undertaken. But there are also inherent problems with this therapy. There is, in fact, a current concern that individuals should not undertake salt replacement therapy without medical supervision.

There are two populations that must be acknowledged when considering salt replacement therapy - those who are acclimatized to their environment and those who are not. Each is treated differently.

Acclimatization to heat represents physiological adaptation so that the individual is able to tolerate work and/or exercise in a hot environment. This may require a few days to one or more weeks to occur. With acclimatization, the cardiovascular, endocrine and exocrine systems adapt to the increased temperatures. The extracellular fluid space may expand by 10 percent aided by the action of water conservation and salt-retaining hormones. Acclimatized individu-

Table 2**Representative OTC Salt Substitute Products**

Product (Mfr)	Potassium Content	
	mg/5gm	Meq/5Gm
Aldolph's Salt Substitute* (Adolph's)	2448	63
Adolph's Seasoned Salt** (Adolph's)	1328	34
Co-Salt* (USV Pharmaceutical)	2340	60
Diasal* (Fougera)	2340	60
Featherweight "K" Salt* (Chicago Dietetic Supply)	448.5	11.5
Featherweight Seasoned Salt Substitute* (Chicago Dietetic Supply)	409.5	10.5
Morton Salt Substitute* (Morton Salt Co)	2736	70
NoSalt* (Norcliff-Thayer)	2736	70
Neocurtasal* (Winthrop-Breon)	2340	60
Sweet and Low Nu-Salt** (Cumberland)	2640	68
*Sodium content (mg/5 gm): ≤ 0.5		
**Sodium content (mg/5 gm): < 1		

als produce a larger volume of sweat that contains a lower concentration of sodium. The maximal rate of sweat loss for the unacclimatized individual is reported to be 1.5 L/hr, and for the acclimatized person, 2.5 L/hr. Sodium loss is 100 mEq/L and 70mEq/L respectively. Acclimatized individuals are, therefore, able to maintain better internal control over electrolyte loss and regulation of temperature.

The sodium balance may be affected in two ways. First, sodium is lost by those who sweat excessively but do not replace it during the first few days of active sweating. Second, individuals may become hyponatremic by consuming large quantities of water without concurrent salt replacement.

Supplementation in heat-acclimatized persons who maintain a normal daily dietary salt intake of about 10 gm. is reportedly not

necessary because they really do not lose that much sodium. Unacclimatized persons may lose 15 to 25 gm sodium/day in hot environments so they are candidates for salt replacement.

Salt replacement can be undertaken safely by increasing salt intake by 5 to 15 gm/day, depending on the severity of heat exposure and sodium loss. Except for the first week or two until the person becomes acclimatized, routine use is not advised. Salt replacement should not be attempted whenever concurrent fluid intake is inhibited.

Unacclimatized persons who exercise in hot climates for brief periods need not be concerned about supplementation. Mild sodium losses will be balances by gains achieved from a normal diet. Persons who are exposed to prolonged physical exertion in hot temperatures may be candidates for

Continued on page 32

SALT SUBSTITUTES

sodium replacement therapy, by each person will have a different requirement. Whenever there is any question about the possible necessity for salt replacement, the individual should consult a physician.

Safety.

Oral salt replacement products may cause gastric irritation with nausea and/or vomiting, weakness, increased potassium loss, and prickly heat and skin eruptions. Acclimatization may be delayed. Replacement therapy can also induce severe edema, hypertensive crisis, and neurological deterioration with acute psychosis.

Can Any Liquid Be Used to Replenish Fluid and Electrolyte Losses?

Table 3 lists the sodium, potassium and carbohydrate content of common liquids. Milk is rich in sodium, potassium and carbohydrate (which provides energy). It is not tangy and, thus, is a poor thirst quencher. Milk also contains protein and fat which are difficult to digest during exercise, and protein also increases the body temperature.

Orange juice is an excellent source of

sodium, potassium, and carbohydrate, and is a good thirst quencher. Its acidity may upset the stomach during periods of stressful exercise such as competitive sports.

Colas, ginger ale, and beer provide carbohydrate and are good thirst quenchers. However, they do not supply needed electrolytes.

Coffee and tea provide neither electrolytes nor carbohydrate in the unsweetened state. Further, caffeine-containing beverages are central nervous system stimulants and can increase sweating and additional fluid loss.

Commercial mixtures of electrolytes such as Gatorade® are excellent thirst quenchers and can quickly replenish lost electrolytes. They are generally classed as food, rather than drug items. Consequently, FDA does not allow medical claims to be made for them.

Salt Substitutes

The average adult requires 1.2 to 3.3 gm of sodium each day. It is estimated that most people actually consume 2.3 to 6.9 gm of sodium daily, or twice the quantity needed. Sodium is abundant in the food supply; nearly

Table 3

Sodium-Potassium-Carbohydrate Comparison of Some Commonly Used Food Liquids

Food Liquid	Sodium mEq/L	Potassium mEq/L	Carbohydrate gm/8 oz
Whole milk	22	37	12.5
Orange juice	< 1	43	27
Cola	6	< 1	27.6
Ginger Ale	3	1	20
Beer	1	4.7	10.6 (CHO) 8.9 (ALC)
Coffee (plain)	1	1	1
Tea (plain)	1	1	< 1

Modified from: Balakian G: What are the "ades" all about?
Medical Times 99(9):202, 1971

all foods contain it. Discretionary salting, that is, the addition of salt during cooking or at the table, accounts for less than 30 percent of intake.

Salt substitute products are used primarily by persons with cardiovascular disease. Hypertension alone occurs in nearly 60 million Americans. It is the leading contender for causing stroke, and a major contributor to heart and kidney failure, and heart attack in the U.S.

Diuretics are frequently prescribed to treat hypertension. Increased potassium excretion possibly leading to hypokalemia may be one outcome of diuretic therapy. However, potassium chloride supplementation poses significant compliance problems due to its unpalatability and/or high cost. Physicians may, therefore, recommend that persons regularly use a salt substitute product in place of prescribed potassium therapy. Such supplementation is an acceptable means for providing potassium to maintain normal serum levels.

Individuals report significantly differing taste preference for the various salt substitute products. This objective preference is undoubtedly influenced by the quantity of product used, the type of food to which it is added, and other personal factors. Pharmacists can stock several different brands and suggest that their customers first purchase small-size container to determine which taste they like best, before they purchase in quantity.

Safety

Persons who have normal renal function, and others with renal failure that does not involve urine loss, rarely develop hyperkalemia from using salt substitute products. In persons with renal pathology, the diseased kidney may already be functioning maximally as far as potassium excretion. Persons on sodium-restricted diets or persons taking potassium-retaining drugs would be at higher risk if using a salt substitute. Products that contain more than 975 mg (25

mEq) potassium in a daily dose should not be used by persons with renal disease.

Products purported to be "light-salt" are not equivalent to salt substitute products. One such product, Lite-Salt®, is an iodized mixture of sodium and potassium chlorides. It contains approximately 130 mEq sodium and 37 mEq potassium per teaspoonful. Cardiovascular patients on low sodium diets who use these products may experience toxicity.

New FDA Regulations for Labeling of Food Items

There are not federal regulations that mandate the labeling of food products for sodium content. New food products introduced onto the marketplace must indicate sodium content per serving on the label. Many manufacturers of older products have changed their labeling to meet these requirements. Specific descriptive phraseology that is used on the labels is stated as follows: Sodium free foods contain less than 5 mg/serving; very low sodium foods contain up to 35 mg/serving, and low sodium foods have been formulated to contain less than 25 percent of the sodium content as the processed or high-sodium nonprocessed foods they are promoted to replace. The label must show comparisons of the sodium content preserving with that of the food it replaces.

Drug Interactions Involving Sodium and Potassium

Potassium-sparing diuretics (i.e., amiloride-Midamor®, spironolactone-Aldactone®, triamterene-Dyrenium®) decrease potassium excretion. The additional intake of potassium in salt substitute products could lead to fatal hyperkalemia. The manufacturers of potassium-sparing diuretics, as well as those of prescription potassium supplements, contraindicate against concurrent use with salt substitutes.

While these two types of agents are used to combat hypokalemia, such therapy must

Continued on page 34

Table 4

Salt and Sodium Conversions

• Grams to milligrams	Multiply weight in grams by 1,000
• Sodium into salt (NaCl) equivalent	Milligrams of sodium content / 0.40 = milligrams of salt
• Salt into sodium	Milligrams of salt x 0.40 = milligrams of sodium
• Sodium in milligrams to sodium in milliequivalents	Milligrams of sodium / 23
• Milliequivalents of sodium to milligrams of sodium	Milliequivalents of sodium x 23 = milligrams of sodium
• Millimoles to milliequivalents	1 for 1 (i.e., 100 mmol of sodium = 100 milliequivalents)

be undertaken in a hospital with the patient under close supervision. Persons should not initiate salt substitute therapy if they are taking a potassium-sparing diuretic without first checking with their physician.

The potassium-sparing/sodium-depleting diuretic products (i.e., Aldactazide®, Dyazide®, Maxzide®, and Moduretic®) are borderline as far as being contraindicated for use along with salt substitutes. Patients taking them should also check with their physician before using OTC salt substitutes.

The **angiotensin converting enzyme (ACE)** inhibitors (i.e., captopril-Capoten®, enalapril-Vasotec®, lisinopril-Prinivil® and Zestril®) also cause potassium retention. The mechanism for retention differs from that of the potassium-sparing diuretics, but the end result, hyperkalemia, can be the same.

ACE inhibitors decrease the production of aldosterone by the adrenal gland. This mineralocorticoid conserves sodium at the expense of potassium in the distal renal tubule. By decreasing its secretion, ACE inhibitors reduce this exchange, and increase potassium retention. Patients taking ACE inhibitors should consult with their physician before using OTC salt substitutes.

Both salt substitutes and salt replacement

products can interact with lithium. Lithium is in the same group of elements as sodium and potassium (i.e., monovalent cations). These three ions compete with each other for the transport system that carries them across cellular membranes.

In the kidney, potassium and sodium can affect lithium excretion/retention. There is little information on a significant problem with potassium, but increased sodium intake may result in enhanced excretion of lithium with lessened therapeutic effect. Decreased sodium intake can increase both the pharmacologic and toxicologic effects of lithium salts.

Lithium has a narrow therapeutic index. Patients taking it should maintain a constant intake of sodium to avoid fluctuations in lithium levels.

Counseling Consumers

Consumers who desire to replace sodium during periods of active exercise in hot climates should be dissuaded from the shaker. Such ingestion of unmeasured quantities may result in salt-induced toxicity. Commercially available salt tablets contain measured quantities and are labeled with specific directions for use.

Consumers should be advised not to use

salt replacement products if they are on a low sodium diet, or if they have cardiovascular or kidney disease without first checking with a physician. They should also not take the products alone, without drinking at least a full glass of water.

As stated earlier, many processed foods have a high sodium content. Individuals on a low sodium diet may not realize that the salt they add to food during cooking or at the table represents less than one-third of their total daily intake. In fact, bread supplies up to half of the daily sodium intake of many people. Certain medications also may contain significant sodium.

The use of salt substitutes alone, therefore, without concurrently modifying the diet by using low-sodium foods and avoiding OTC medications rich in it, may not reduce sodium intake sufficiently. Consumers should be instructed to carefully study food and OTC medication labels for listed sodium content, and to use these data in calculating their total daily salt intake.

Some food and drug product labels state their sodium content in grams or milligrams, and others express it in milliequivalents. Pharmacists may instruct consumers on how to convert milligrams to milliequivalents, and vice versa, so they can calculate the amount of sodium they ingest each day. The conversion information is presented in Table 4.

Consumers should avoid alcohol during periods of high temperatures because it increases the metabolic rate, induces dehydration, and decreased sound judgement. They should limit intake of drugs with anticholinergic action during these periods since they reduce the ability to sweat and, thus, hinder the body's heat exchange system.

There are many cookbooks that contain salt-free recipes. The American Heart Association also provides recipes for salt-free, flavored dishes. Pharmacists can supply these books and recipes, and even serve as a repository for low sodium recipes from their own patients, who wish to share them with others.

CORRESPONDENCE COURSE QUIZ

Salt Substitutes and Replacement Products

1. The primary concern in heat-related disorders is the loss, through sweating, of which of the following ions?

- a. Chloride
- b. Magnesium
- c. Calcium
- d. Sodium

2. When reading the labels of food products with their sodium content expressed as milliequivalents, the equivalent amount of milligrams of sodium can be calculated by:

- a. dividing the milliequivalents of sodium by 23.
- b. multiplying the milliequivalents of sodium by 23.
- c. dividing the milliequivalents of sodium by 40.
- d. multiplying the milliequivalents of sodium by 40.

3. Which of the following drugs is LEAST likely to cause hyperkalemia in a patient using a salt substitute?

- a. Aldactone®
- b. Capoten®
- c. Lithobid®
- d. Vasotec®

4. In acclimatized persons, the extracellular fluid space:

- a. decreases.
- b. expands.

Continued on page 36



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5. Oral salt replacement products are least likely to cause:

- a. gastric irritation.
- b. increased potassium retention.
- c. weakness.
- d. prickly heat.

6. Which of the following is most likely to decrease the therapeutic effect to lithium salts when taken concurrently?

- a. Salt replacement products
- b. Salt substitute products

7. Of the following, the salt substitute that contains the largest amount of potassium per 5 mg serving is:

- a. Adolphs®.
- b. Diasal®.
- c. Featherweight®.
- d. NoSalt®.

8. Individuals who are LEAST likely to succumb to heat-related illness are those:

- a. who are overweight.
- b. who are physically unfit.
- c. who are acclimatized.
- d. with a history of skin disorders.

9. Using the conversion chart in Table 4, it can be determined that products containing 200 mg of salt (sodium chloride) contain:

- a. 8 mg of sodium.
- b. 16 mg of sodium.
- c. 80 mg of sodium
- d. 160 mg of sodium

10. ACE inhibitors interact with salt substitute products because there is a potential for increased potassium retention due to the ACE inhibitor's action on:

- a. adrenocorticotrophic stimulating hormone.
- b. aldosterone.
- c. antidiuretic hormone.
- d. intrinsic factor.

Cut out or Reproduce and Mail

CONTINUING PHARMACEUTICAL EDUCATION

Salt Substitutes & Salt Replacement Products

- Attach a mailing label from The Carolina Journal of Pharmacy or print your name and address and mail to CE Test, NCPHA, P.O. Box 151, Chapel Hill NC 27514
- Completed answer sheets may be returned on a monthly or less frequent basis for grading
- **This is a member service. Non-member tests will not be graded nor CPE credit hours given**
- NCPHA will maintain a copy of your completed CPE tests and upon successful completion of each program, will issue a certificate for one (1) hour of Board-approved CPE
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Please circle correct answer

- 1. a b c d
- 2. a b c d
- 3. a b c d

- 4. a b
- 5. a b c d
- 6. a b

- 7. a b c d
- 8. a b c d
- 9. a b c d
- 10. a b c d

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FROM THE MAILBAG

Continued from page 25

all pharmacists in North Carolina. I'm sure you can understand why I am fighting mail order prescriptions, and why I had to let you know that I do not appreciate your bank's attempt to be a drugstore, travel agency, eyeglass fitter, and an insurance agency....all in one.

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*Continued from
page 21*

The February meeting of the **Guilford County Society of Pharmacists** was held Sunday February 11 at the Greensboro AHEC Center. Speaker for the evening was noted pharmacist/attorney, Carl Gainor of Pittsburg, who addressed the topic "Malpractice Issues". The speaker was sponsored by Merck. Following the program, 1990 Officers for the Society were installed: President—Regina Trentadue, Vice President—Joe Casacchia, Secretary/Treasurer—Frank Burton.

New officers of the **Wayne County Pharmaceutical Society** have been elected to serve during 1990. They are: President—Robert Worley, Vice President—Rick Sessions, Secretary—Johnnie Casey, Treasurer—Sherry Denning.

CAMPBELL STUDENTS RECEIVE AWARDS

Three Campbell University Pharmacy Students have received national recognition for their novel proposals to decrease patient misuse of prescription and non-prescription medications. Mr. Jerald Cole, Mr. Rusty Mantooth and Mr. Bill Symonds have been awarded \$1,200 each by NARD under the Smithkline Beecham Product/NARD Foundation Student Research Grants Program. None such awards were made nationally.

Mr. Cole has proposed to provide guidelines for the pharmacist in answering the frequently asked question "What do I do if I miss a dose of medicine?" Jerald will begin classifying medications according to the proper answer starting with the most commonly used drug products. He feels the answer to this questions falls into only three categories: (1) Wait until the next dose and continue your therapy as scheduled; (2) Take two doses immediately, then resume the normal schedule; and (3) take a single dose now, and resume the normal schedule."

Mr. Mantooth has proposed the development of "Pictograms to Educate Illiterate Patients about Choosing Over-the Counter Products." He has developed fifteen pictograms describing various symptoms, indications and contra-indications to medication usage to be included in product labeling.

Mr. Symond's project proposed "Improving Patient Knowledge and Outcome in Home IV Therapy" by pharmacist intervention. As intravenous therapy increases in the home setting, more effective monitoring of these patients will be necessary. Symond's plans to visit a number of such patients to determine first hand their need for more advice and assistance.

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Classified advertising rates are 25 cents a word for members with a minimum of \$5.00 per insertion and for nonmembers, classified ads are 50 cents a word with a minimum charge of \$10.00 per insertion. Ads are accepted for a single issue or specific time period only. The closing date for ad orders is the first of the month preceding the issue in which you are requesting insertion. Payment for ad orders will be billed. Names and addresses will be published unless an ad number for a blind ad is requested. In replying to blind ads, send to Ad Number (), *The Carolina Journal of Pharmacy*, P.O. Box 151, Chapel Hill, NC 27514. Telephone (800) 852-7343 (in state) or (919) 967-2237.

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DIRECTOR OF PHARMACY, FACULTY POSITION: The School of Pharmacy, University of North Carolina at Chapel Hill and Dorothea Dix Hospital in Raleigh are recruiting a qualified hospital pharmacist faculty member to serve as Director of Pharmacy Services at the Dorothea Dix Hospital. Responsibilities include planning, organizing, budgeting, staffing and directing a pharmaceutical-care system and implementing clinical pharmacy services for the acute medical/surgical and psychiatric units. The applicant should possess a certificate of hospital pharmacy residency, a postgraduate degree in pharmacy practice, three years experience at the assistant director of pharmacy level and eligibility for licensure in North Carolina. Salary and rank are commensurate. Letters of application ac-

company by a curriculum vitae and three letters of recommendation should be sent by March 31, 1990 to: Robert J. Schollard, M.P.H., Clinical Associate Professor, University of North Carolina at Chapel Hill, School of Pharmacy, CB# 7360, Chapel Hill, NC 27599, 919-966-3023.

MISCELLANEOUS

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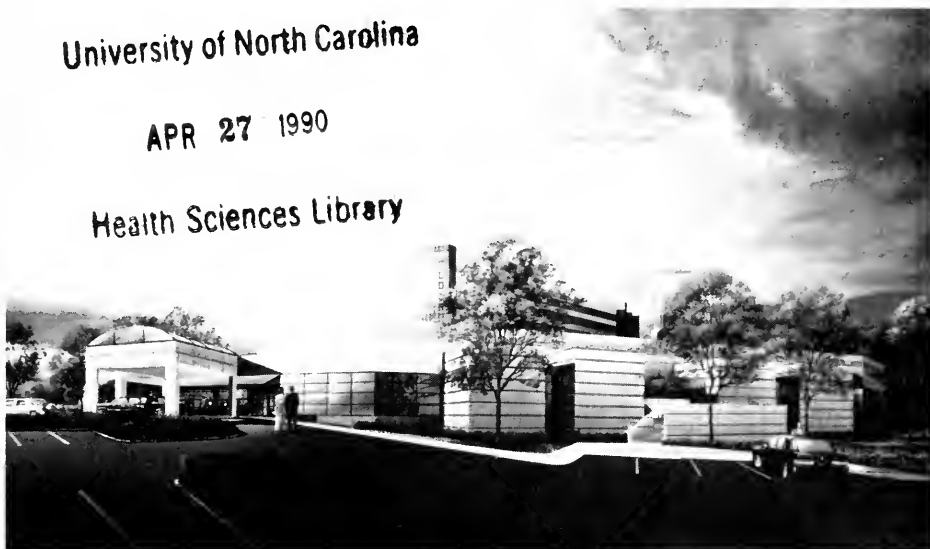
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VOLUME 70

MARCH 1990

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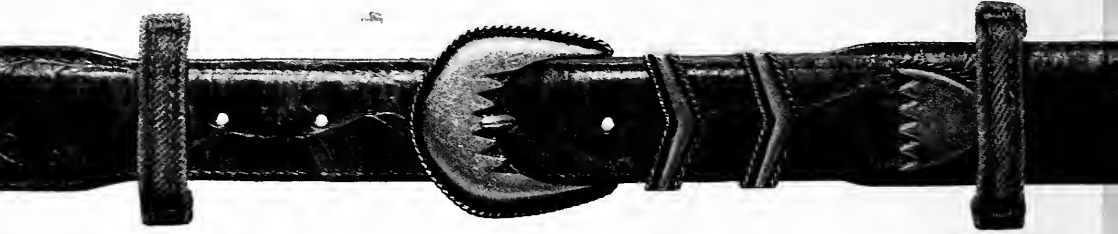
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Sexually active adults will be urged to send for a free guide that explains how to perform a GSE. The guide discourages self-diagnosis and encourages seeing a healthcare professional if anything suspect is found.

While STDs are currently regaining their foothold on the American population, the GSE program offers a promising outlook for reducing their spread.

*The American Academy of Dermatology, the American Academy of Family Physicians, the American College of General Practitioners in Osteopathic Medicine and Surgery, and the American Osteopathic Association.



IMPROVING LIVES THROUGH
ANTIVIRAL RESEARCH



Burroughs Wellcome Co.,
Research Triangle Park,
North Carolina 27709

THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

MARCH 1990

VOLUME 70

NUMBER 3

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ISSN 0528-1725

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The *Carolina Journal of Pharmacy* is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.



Ralph H. Ashworth
President, NCPHA



Stephen C. Dedrick
NCPHA Convention Chairman



Carolyn O'Quinn
WA Convention Chairman



Betsy Mebane
President, WA



Rudy Snow
President, TMA

THE NORTH CAROLINA PHARMACEUTICAL ASSOCIATION 110TH ANNUAL CONVENTION

Sheraton Imperial Hotel & Towers

Research Triangle Park

May 23-26, 1990

Wednesday, May 23

- 3:00-6:00 p.m. Registration Desk Open
- 6:00-7:00 p.m. *PRESIDENTS' RECEPTION honoring Ralph H. Ashworth, President, NCPHA; Betsy Mebane, President, Woman's Auxiliary; Rudy Snow, President, Traveling Member's Auxiliary; and James C. McAllister, President Elect, American Society of Hospital Pharmacists. **Sponsored by Glaxo Inc.**
Empire Foyer
- 7:00-10:00 p.m. **OPENING SESSION BANQUET—Master of Ceremonies, Stephen C. Dedrick, Convention Chairman. Guest Speaker, Julia A. McCullers—"North Carolina as Explained to English Tourists". Musical Entertainment by "The Durham Chorale". Presentation of Robins Bowl of Hygeia, Don Blanton Award, Marion Merrell Dow, Inc. Distinguished Young Pharmacist of the Year and the announcement of the 1990 NCPHA **Pharmacist of the Year**
Empire Ballroom

Thursday, May 24

- 7:00 a.m. WOMAN'S AUXILIARY WALK-A-THON
- 7:30-9:00 a.m. **Officers Breakfast *Imperial I*
- 7:30-9:30 a.m. TMA Foundation Breakfast *Bull Durham*
- 8:00 a.m.-1:00 p.m. Registration Desk Open
- 9:00 a.m.-12:30 p.m. First NCPHA GENERAL SESSION-President-Elect J. Frank Burton, presiding.
Rite of the Roses conducted by Third Vice-President Stephen C. Dedrick and Mrs. Dedrick; President's Address, President Ralph H. Ashworth; UNC School of Pharmacy Annual Reports, Dean Tom C. Miya and ASP Student President Christine Teague; Report of the Nominations, Resolutions, and Constitution & By-Laws Committees; "Biotechnology Seminar", **sponsored by Schering Laboratories** *Empire ABC*
- COFFEE BREAK—**Sponsored by N.C. Mutual Wholesale Drug Company**

Continued on page 7

1990 MANAGEMENT SEMINAR

Jointly Sponsored by the NC Pharmaceutical Association, the NC Society of Hospital Pharmacists and the UNC-CH School of Pharmacy

May 23, 1990

**Sheraton Imperial Hotel and Towers
Research Triangle Park**

This program will be held prior to the NCPHA Annual Convention, May 23-26, 1990 at the Sheraton Imperial Hotel and Towers.

Program Objectives: After participating in this program the participant should be able to:

1. Identify skills and techniques used to evaluate and set priorities.
2. Discuss considerations in balancing professional and business priorities.
3. Describe factors that influence value and reimbursement for pharmacy services.

May 23, 1990

8:00-8:50 am **Registration**

8:50-9:00 am **Welcome**

Alfred H. Mebane III
Executive Director
NC Pharmaceutical Association

MORNING SESSION

Moderator Ralph H. Ashworth, President
NC Pharmaceutical Association

9:00-10:15 am **Managing Multiple Priorities**

Ed Greif, CMC
Ed Greif & Company

10:15-10:30 am Break

10:30-Noon **Managing Multiple Priorities (continued)**

12:00-1:00 pm LUNCH

AFTERNOON SESSION

Moderator Fred M. Eckel, M.S.
Executive Secretary, NCSHP

1:00-1:45 pm **Professional Priorities: Deciding with Facts and Values**

Thomas F. Hughes, M.B.A.
Clinical Associate Professor
UNC School of Pharmacy

1:45-2:00 pm Break

2:00-2:45 PM **How Valuable are Pharmacy Services?**

Jan D. Hirsch, Ph.D.
Asst Director of Pharmacoeconomic Research
Glaxo Inc.

Continued on page 10

110TH ANNUAL CONVENTION

Continued from page 5

- 10:00 a.m. WA Buses leave for University Towers
- 10:30 a.m. **WA BRUNCH AND FASHION SHOW by "Images" of South Square at the University Club, University Towers. Immediately following the Fashion Show, buses will leave for TOUR OF DUKE CHAPEL and ORGAN CONCERT, Duke University
- 12:30-1:00 p.m. PRECEPTOR RECOGNITION LUNCHEON Campbell University School of Pharmacy and UNC-CH School of Pharmacy (By Invitation) *Royal A&B*
- 2:00-5:00 p.m. *First Annual Pharmacy State Board Review, PART I. Refreshments sponsored by Campbell University School of Pharmacy *Auditorium*
- Afternoon *GOLF TOURNAMENT at Hope Valley Country Club, Durham; Junior Little, Golf Chairman. Green fees **sponsored by Owens Brockway**; golf carts **sponsored by Burroughs Wellcome Co.**; favors and refreshments **sponsored by Glaxo, Inc.**
- Afternoon *JEFFERSON-PILOT TENNIS TOURNAMENT at Hope Valley Country Club, Durham; Sam Stuart and Ralph H. Ashworth, Tennis Co-Chairmen
- 6:00-7:00 p.m. NEW GRADUATES RECEPTION **sponsored by Kerr Drug Stores** *Royal A&B*
- 9:00 p.m.-midnight *TMA DANCE featuring the "Band of Oz". Cash bar. Presentation of medals and awards for Golf, Tennis and WA Walk-A-Thon during intermission. **Sponsored by the Traveling Member's Auxiliary** *Imperial I-IV*

Friday, May 25

- 7:30 a.m. **PharmPAC Breakfast. Speaker of the House, Josephus L. Mavretic, Guest Speaker *Crown A&B*
- 8:00 a.m.-12:30 p.m. Registration Desk Open
- 8:30 a.m.-9:15 a.m. WA COFFEE *Governors Suite 9th Floor*
- 9:00 a.m. Second NCPHA GENERAL SESSION-Second Vice President Betty H. Dennis, presiding.
Campell University School of Pharmacy Annual Reports,

Continued on page 9

BOARD OF PHARMACY EXAM REVIEW

NCPHA 110th Annual Meeting

May 24-25, 1990

Thursday, May 24: 2:00 p.m. - 5:00 p.m.

- 2:00 - 2:05 p.m. **Introduction of Program**
Ronald W. Maddox, Pharm.D., Dean
Campbell University School of Pharmacy
- 2:05 - 3:00 p.m. **Managing your Anxiety**
Fred M. Eckel, M.S.
UNC School of Pharmacy
- 3:00 - 3:45 p.m. **Preparing for the NABPLEX**
William R. Adams Jr., RPh.
North Carolina Board of Pharmacy
- 3:45 - 4:00 p.m. Break
Refreshments sponsored by the Campbell University School of Pharmacy
- 4:00 - 5:00 p.m. Pharmacokinetics Review
Ronnie Chapman, Pharm.D.
Campbell University School of Pharmacy
- 6:00 - 7:00 p.m. **BOARD CANDIDATES' RECEPTION**
Sponsored by Kerr Drug Stores

Friday, May 25: 2:00 p.m. - 5:00 p.m.

- 2:00 - 3:00 p.m. **NC Pharmacy Law Review**
David R. Work, J.D., RPh.
NC Board of Pharmacy
- 3:00 - 3:45 p.m. **Review of Parenteral Antibiotics**
Byron May, Pharm.D.
Campbell University School of Pharmacy
Duke University
- 3:45 - 4:00 p.m. Break
Refreshments sponsored by the UNC School of Pharmacy
- 4:00 - 5:00 p.m. **Errors and Omissions; Compounding**
Robert L. Smith, M.S.
UNC School of Pharmacy

110TH ANNUAL CONVENTION

Continued from page 7

Dean Ronald W. Maddox and ASP Student President John Stephenson; Benny Ridout, "Current Status of N.C. Medicaid"; David R. Work, N.C. Board of Pharmacy Report; Andy Barrett, Pharmacy Network; Second Report of Constitution and By-Laws Committee; Voting on Resolutions and Nominations
Empire ABC

COFFEE BREAK Sponsored by N.C. Mutual Wholesale Drug Company

- 9:30 a.m. WA Business Session *Royal A&B*
- 11:00 a.m. TMA Business Session *Empire E*
- Noon WA Buses leave for Hope Valley Country Club
- 12:30 p.m. **WA LUNCHEON AND INSTALLATION OF OFFICERS, Hope Valley Country Club featuring Jimmie Butts on "Laugh for the Health of It". Immediately following luncheon buses will leave for TOUR OF PATTERSON'S MILL, An Outstanding Collection of Pharmacy Memorabilia by Elsie Booker.
- 1:00 p.m. **EXHIBITORS' FAIR AND LUNCHEON *Imperial*
- 2:00-4:00 p.m. *Local Association Officers' Workshop moderated by Stephen C. Dedrick *Crown A&B*
- 2:00-5:00 p.m. *First Annual Pharmacy State Board Review, PART II Refreshments **sponsored by UNC School of Pharmacy Auditorium**
- 5:10 p.m. Buses leave for Durham Bull Baseball Park
- 5:30 p.m. **PICNIC Catered by Bullock's of Durham
- 7:30 p.m. **BASEBALL GAME, Durham Bulls vs. Winston Salem Chicago Cubs
- Picnic and ballgame **sponsored by Jefferson Pilot and Rugby Laboratories, Inc.**
- 10:30 p.m. *ICE CREAM PARTY **Sponsored by Burroughs Wellcome Imperial I-IV**

Saturday, May 26

- 7:30-9:00 a.m. **Christian Pharmacists' Breakfast *Crown A&B*

Continued on page 10

110TH ANNUAL CONVENTION

Continued from page 7

8:00 a.m.

****WA Past President's Breakfast** *Bull Durham*

9:00 a.m.

Third NCPHA GENERAL SESSION-President Ralph H. Ashworth, presiding.
"1989-90 New Drug Update", presented by Thomas A. Gossel, Ph.D., Professor of Pharmacology and Toxicology, Ohio Northern University and J. Richard Wuest, Pharm.D., Professor of Clinical Pharmacy, University of Cincinnati.
Sponsored by Marion Merrell Dow Inc. Report of the Convention Registrar, Tom Burgiss; Report of the Time and Place Committee *Empire ABC*

COFFEE BREAK Sponsored by N.C. Mutual Wholesale Drug Company

1:00 p.m.-3:00 p.m.

**** INSTALLATION OF OFFICERS and AWARDS LUNCHEON**, President Ralph H. Ashworth, presiding.
"50 Plus" Club Inductions. Presentation of Geigy "Pharmacist Mate" Award, E.R. Squibb Presidential Award, Syntex UNC Preceptor of the Year Award, NARD Leadership Award and McKesson Award *Imperial I-IV*

** Prior convention registration is required to attend these activities.*

*** Prior convention registration and reservations are required to attend these activities. Tickets may be purchased through the NCPHA office or at the convention registration desk prior to 24 hours of the scheduled activity.*

1990 MANAGEMENT SEMINAR, Continued from page 6

2:45-3:45 pm PANEL DISCUSSION

"Value and Reimbursement for Pharmacy Services"

Jean B. Douglas, Pharm.D.
Moses Cone Hospital
Greensboro, NC

William W. Moose
Moose Drug Company
Concord, NC

Jimmy Jackson, Vice President
Kerr Drugs
Raleigh, NC

Betty Rowe
Biomedical Home Care
Raleigh NC

CONTINUING EDUCATION

This seminar, ACPE 679-046-90-053, will provide 6.0 contact hours of continuing pharmaceutical education credit.

NCPHA CONVENTION PROGRAM HIGHLIGHTS

1990 Management Seminar, May 23, 8:00 a.m.-3:45 p.m., preceding the NCPHA Annual Convention, sponsored by NCPHA, the UNC School of Pharmacy, and NCSHP. This program will provide participants with 6.0 ACPE contact hours of continuing education credit. See program details on page 6.

Presidents' Reception, Wednesday, May 23, 6:00-7:00 p.m., honoring Ralph H. Ashworth President of NCPHA; Betsy Mebane, President Woman's Auxiliary; Rudy Snow, President Traveling Member's Auxiliary; and James C. McAllister, President Elect American Society of Hospital Pharmacists. The reception will precede the Opening Session Banquet.

Julia McCullers, a humorous and well-recognized speaker, will present "North Carolina as Explained to English Tourists" as part of the program for the Opening Session Banquet on Wednesday evening, May 23, 7:00-10:00 p.m. McCullers, a Smithfield native, is a graduate of Duke University where she received A.B. and M.A. degrees in English and was an Angier B. Duke Scholar. As a finale to the evening program, **The Durham Chorale** will perform a repertoire of popular musical entertainment.

Amendments and changes to the **NCPHA Constitution & By-Laws** that appeared in the January issue of *The Carolina Journal of Pharmacy* will be voted on Saturday, May 26, during the FINAL SESSION of the Convention. These changes center primarily on the election NCPHA officers. You must be present to cast your voice and vote.

Speaker of the House, Josephus L. Mavretic will be the guest speaker at the **PharmPAC Breakfast** on Friday, May 25.

One of the more exciting developments for pharmacy practice in the next few years will be the emergence of different and new medications from the field of **Biotechnology**. Schering Laboratories will sponsor a

one-hour program on this topic on Thursday, May 24, during the FIRST SESSION of the Convention so that participants can become more familiar with this new field of biotechnology and learn more about biotechnology products.

This year the **Preceptor Recognition Luncheon** will be expanded to honor pharmacy practitioners who have served as preceptors in the UNC or Campbell University Schools of Pharmacy student internship programs. The invitational luncheon is scheduled on Thursday, May 24 at 12:30-2:00 p.m.

First Annual State Board Review will debut at NCPHA's 110th Annual Convention. Two afternoons will be devoted to helping graduating pharmacy students prepare for their national and state board exams. See page 8 for the program agenda.

Awards will be presented to deserving pharmacists at the Opening Session Banquet on Wednesday, May 23, 7:00-10:00 p.m. and at the Awards Luncheon on Saturday, May 26, 1:00-3:00 p.m. The awards include: Robins Bowl of Hygeia Award, The Don Blanton Award, Marion Merrel Dow Inc. Distinguished Young Pharmacist of the Year Award, NARD Leadership Award, McKesson Award, Syntex UNC Preceptor of the Year Award, E.R. Squibb Presidential Award, Geigy "Pharmacist Mate" Award, the announcement of the 1990 Pharmacist of the Year, and inductions into the 50-Plus Club (to recognize pharmacists who have been practicing pharmacy for at least 50 years). Winners of these awards will also be announced in an issue of *The Journal* following the convention.

A 1989-90 New Drug Update will be presented by Thomas A. Gossel, Ph.D. and J. Richard Wuest, Pharm.D. on Saturday, May 26, during the FINAL GENERAL SESSION of the Convention. Both Gossel and

Continued on page 13



The Band of Oz, musicians for the Traveling Members' Auxiliary Dance, Thursday night



The Durham Chorale will provide entertainment during the Opening Banquet on Wednesday night

CONVENTION PROGRAM HIGHLIGHTS, *continued*

Wuest are regular contributors to the pharmacy literature, which includes the C.E. articles that routinely appear in *The Carolina Journal of Pharmacy*.

Local Association Officers' Workshop moderated by Stephen C. Dedrick on Friday, May 25 at 2:00-4:00 p.m. A special program is planned to provide helpful organizational hints to leaders (and aspiring leaders) of local pharmacy associations. The objective of this program is to provide participants with information on (1) How to obtain programs for local association meetings, (2) How to encourage membership and member participation, (3) Management of membership information and mailings, and (4) How to obtain CE approval for local meetings. Past officers from successful local associations such as the Down East Pharmacy Society, the Durham-Orange Pharmaceutical Association, and the North West Pharmaceutical Association, and the Wake County Pharmaceutical Association will discuss their secrets for success and offer helpful suggestions for managing and improving your local association.

Pharmacist, John McCall, VA Hospital, Durham, is the invited speaker for the **Christian Pharmacists Fellowship Breakfast**, Saturday, May 26, 7:30 a.m. McCall will share his experience as a short-term pharmacist missionary in Haiti.

A total of **16 Continuing Education Hours** can be obtained by attending all NCPHA SESSIONS (10 C.E. hours) during the NCPHA Annual Convention and the 1990 Management Seminar (6 C.E. hours) prior to the Convention •

NCPHA CONVENTION PHUN

Woman's Auxiliary Walk-A-Thon, Thursday, May 24, 7:00 a.m. Anyone can participate in this healthy fund-raising event. All you have to do is to find sponsors who will reimburse for an agreed-upon price per mile you walk. The proceeds for this event will go to The Consolidated Student Loan Fund and pharmacy projects and scholarships sponsored by the Woman's Auxiliary. Gold, Silver and Bronze Medals will be awarded to the top three fund-raisers.

Golf and Tennis Tournaments at the Hope Valley Country Club in Durham on Thursday afternoon, May 24, beginning at 2:00 p.m. Green fees will be covered by Owens Brockway; golf carts, by the Burroughs Wellcome Co.; and favors and refreshments, by Glaxo, Inc. Jefferson-Pilot will sponsor the Tennis Tournament. Winners of the tournaments will be announced at the TMA Dance.

TMA Dance, an annual event sponsored by the Traveling Member's Auxiliary featuring the Band of Oz on Thursday, May 24, 9:00 p.m.-midnight. Cash bar.

Picnic and Durham Bulls Baseball Game, Friday, May 25, 5:30 p.m. A picnic catered by Bullock's of Durham at the Durham Athletic Park will precede the baseball game featuring the Durham Bulls vs. the Chicago Cubs. Sponsored by Jefferson Pilot and Rugby Laboratories.

Ice Cream Party, Friday, May 25, 10:30 p.m. As a finale to an evening of baseball with the Durham Bulls, an Ice Cream Party courtesy of Burroughs Wellcome Co. will take place back at the Convention hotel—the Sheraton Imperial Hotel and Towers •

CONVENTION SPEAKERS



Julia A. McCullers



**J. Richard Wuest,
Pharm.D.**



**Thomas A. Gossel,
Ph.D.**

ATTENTION PHARMACISTS LICENSED 50 YEARS OR MORE

If you have been a pharmacist for 50 years or more, you are eligible for induction into the **50-Plus Club**. Inductees will be recognized at the Awards Luncheon, Saturday, May 26, during NCPHA's 110th Annual Convention at the Sheraton Imperial Hotel and Towers, Research Triangle Park. Contact Al Mebane at the NCPHA office if you qualify for membership into this elite group of pharmacists who have served their profession for 50-plus years; call 800-852-7343 (in state) or 919-967-2237.

NCPHA OFFICERS TO BE INSTALLED AT ANNUAL CONVENTION

President

J. Frank Burton, Greensboro

President Elect

Betty H. Dennis, Carrboro

Second Vice President

Joseph A. Edwards Jr., Raleigh

Third Vice President

Henry L. Smith, Farmville

Executive Committee, Members At Large

W. Robert Bizzell, Kinston

Sarah B. Cobb, Southern Pines

Robert W. Worley, Princeton

NCPHA PRESIDENTS AND PAST CONVENTIONS

1880-1881 E.M. Nadal, Wilson*	Raleigh, Senate Chamber	Aug. 11, 1880
1881-1882 S.J. Hinsdale, Fayetteville*	New Bern, Masonic Hall	Aug. 9-10, 1881
1882-1883 William Simpson, Raleigh*	Winston, Opera House	Aug. 9-10, 1882
1883-1884 W.H. Green, Wilmington*	Wilmington, Germania Lodge No. 4	Aug. 8 - 9, 1883
1884-1885 V.O. Thompson, Winston*	Charlotte, Chamber of Commerce Hall	Aug.13-14, 1884
1885-1886 H.R. Horne, Fayetteville*	Greensboro, Central Hotel	Aug. 12-13, 1885
1886-1887 A.W. Rowland, Wilson*	Fayetteville, Carolina Club	Aug.11-12, 1886
1887-1888 F.W. Hancock, New Bern*	Asheville, Opera Hall	Aug. 4 - 5, 1887
1888-1889 T.D. Crawford, Oxford*	Goldsboro, Kornegay's Hall	Aug. 8 - 9, 1888
1889-1890 J.D. Croom, Maxton*	Durham, New County Court-House	May 21-22, 1889
1890-1891 E.V. Zoeller, Tarboro*	Morehead City, N.C. Teachers Assembly Hall	Jul. 8-10, 1890
1891-1892 W.H. Wearn, Charlotte*	Morehead City N.C. Teachers Assembly Hall	Jul. 8, 1891
1892-1893 H.R. Cheers, Plymouth*	Raleigh, Hall of Phalanx Lodge	Aug.10-11, 1892
1893-1894 N.D. Fetzer, Concord*	Greensboro, Chamber of Commerce Hall	Aug. 9-10, 1893
1894-1895 J.Hal Bobbitt, Raleigh*	Asheville, Y.M.C.A. Hall	Sept. 3, 1894
1895-1896 P.W. Vaughan, Durham*	Morehead City, N.C. Teachers Assembly Hall	Jul. 10-11, 1895
1896-1897 Augustus Bradley, Burlington*	Morehead City, N.C. Teachers Assembly Hall	Jul. 22-23, 1896
1897-1898 J.P. Stedman, Oxford*	Raleigh, Manteo Lodge I.O.O.F.	May 12-13, 1897
1898-1899 W.M. Yearby, Durham*	Charlotte, Y.M.C.A. Hall	May 18-19, 1898
1899-1900 J.B. Smith, Lexington*	Durham, Old Fellow's Hall	May 18-19, 1899
1900-1901 R.H. Jordan, Charlotte*	Wilmington, Pythian Hall	Jul. 18-19, 1900
1901-1902 E.W. O'Hanlon, Winston Salem*	Winston Salem, Y.M.C.A. Hall	Jun. 19-20, 1901
1902-1903 H.T. Hicks, Raleigh*	Morehead City, City Hall	Jun. 19-20, 1902
1903-1904 W.A. Leslie, Morganton*	Morehead City, Atlantic Hotel	Jun. 11-12, 1903
1904-1905 G.K. Grantham, Dunn*	Asheville, Battery Park Hotel	Jul. 14-15, 1904
1905-1906 T.R. Hood, Smithfield*	Morehead City, Atlantic Hotel	Jun. 22-23, 1905
1906-1907 C.A. Raysor, Asheville*	Wrightsville Beach, Seashore Hotel	Jun. 14-15, 1906
1907-1908 C.R. Thomas, Thomasville*	Lake Toxaway, Toxaway Inn	Jun. 13-14, 1907
1908-1909 J.E. Shell, Lenoir*	Morehead City, Atlantic Hotel	Jul. 8-10, 1908
1909-1910 G.Y. Watson, Southport*	Greensboro, Benbow Hotel	Jun. 23-25, 1909
1910-1911 Max T. Payne, Greensboro*	Charlotte, Selwyn Hotel	Jun. 8-10, 1910
1911-1912 E.T. Whitehead, Scotland Neck*	Morehead City, Atlantic Hotel	Jul. 12-14, 1911
1912-1913 J.G.M. Cordon, Clayton*	Waynesville, Courthouse	Jun. 26-28, 1912
1913-1914 C.P. Harper, Selma*	New Bern, Graded School Auditorium	Jun. 11-13, 1913
1914-1915 G.C. Goodman, Mooresville*	Hendersonville, Court House	Jun. 17-19, 1914
1915-1916 E.L. Tarkenton, Wilson*	Durham, Elks Hall	Jun. 15-17, 1915
1916-1917 E.G. Birdsong, Raleigh*	Wrightsville Beach, Oceanic Hotel	Jun. 20-22, 1916
1917-1918 G.A. Matton, High Point*	Asheville, Battery Park Hotel	Jun. 19-21, 1917
1918-1919 S.E. Welfare, Winston Salem*	Raleigh, Chamber of Commerce	Jun. 19-21, 1918
1919-1920 G.R. Pilkington, Pittsboro*	Wrightsville Beach, Oceanic Hotel	Jun. 24-26, 1919
1920-1921 E.E. Missildine, Tryon*	Asheville, Battery Park Hotel	Jun. 22-25, 1920
1921-1922 I.W. Rose, Rocky Mount*	Charlotte, Selwyn Hotel	Jun. 21-23, 1921
1922-1923 J.A. Goode, Asheville*	Winston Salem, Robert E. Lee Hotel	Jun. 27-29, 1922
1923-1924 P.A. Lee, Dunn*	Greenville, SC in conjunction with S.C.Ph.A., Hotel Imperial	Jun. 26-28, 1923

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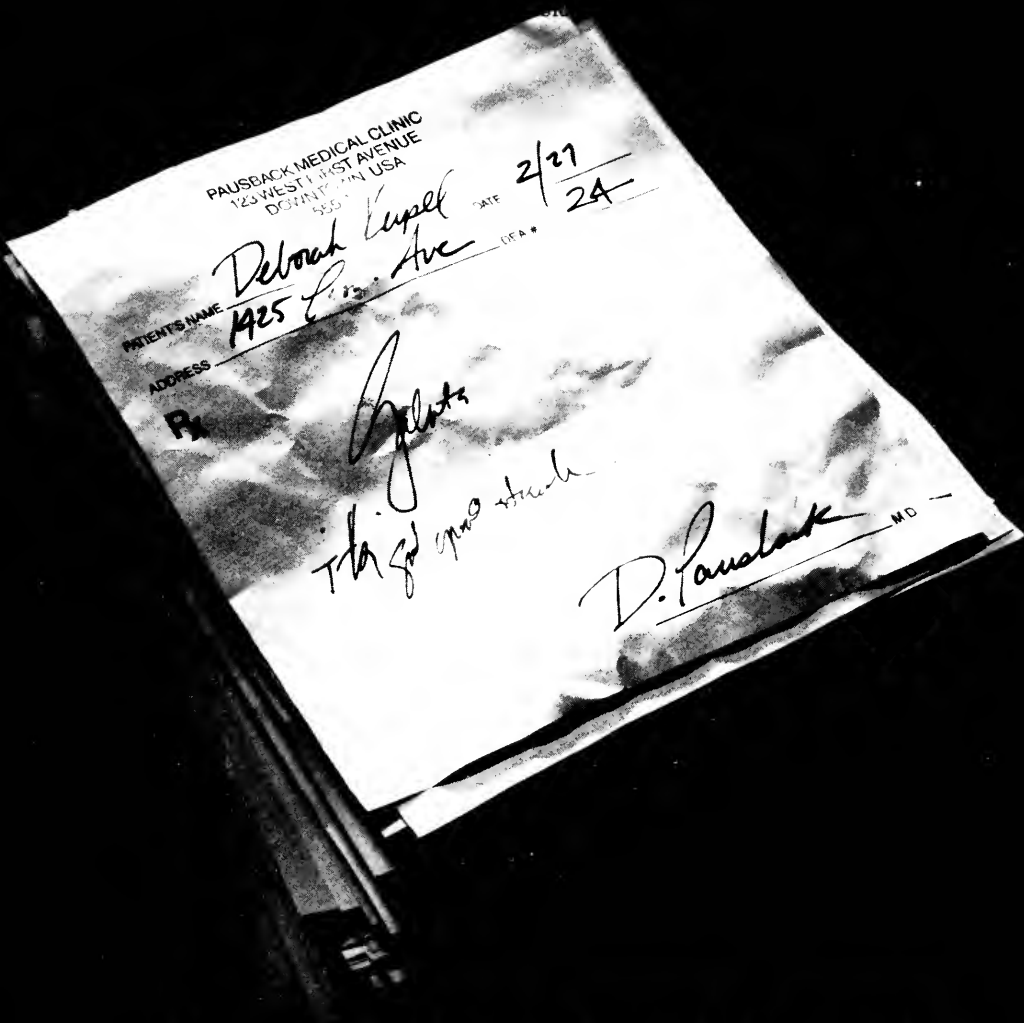
Leadership
In Diabetes Care

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NCPHA PRESIDENTS AND PAST CONVENTIONS

1924-1925 J.P. Stowe, Charlotte*	Wrightsville Beach, Oceanic Hotel	Jun. 24-26, 1924
1925-1926 A.A. James, Winston Salem*	Blowing Rock, Mayview Manor	Jun. 23-25, 1925
1926-1927 Clyde Eubanks, Chapel Hill*	EnRoute to & from N.Y. City on an Old Dominion Steamship	Jun. 21-25, 1926
1927-1928 R.R. Copeland, Ahoskie*	Greensboro, O. Henry Hotel	Jun. 21-23, 1927
1928-1929 Warren W. Horne, Fayetteville*	Morehead City, Morehead Villa	Jun. 19-21, 1928
1929-1930 C.C. Fordham Sr., Greensboro*	Asheville, Battery Park Hotel	Jun. 18-20, 1929
1930-1931 C.B. Miller, Goldsboro*	Raleigh, Sir Walter Hotel	Aug. 11-13, 1930
1931-1932 A.E. Weatherley, Greensboro*	Wrightsville Beach, Oceanic Hotel	Jun. 23-25, 1931
1932-1933 A. Coke Cecil, High Point*	High Point, Sheraton Hotel	Jun. 20-23, 1932
1933-1934 J.C. Hood, Kinston*	Charlotte, Hotel Charlotte	Jun. 19-22, 1933
1934-1935 E.F. Rimmer, Sanford*	Durham, Washington-Duke Hotel	Jun. 25-27, 1934
1935-1936 R.A. McDuffie, Greensboro*	Winston Salem, Robert E. Lee Hotel	May 13-15, 1935
1936-1937 W.C. Ferrell, Nashville*	Greensboro, O. Henry Hotel	May 12-14, 1936
1937-1938 P.J. Suttlemyre, Hickory*	Raleigh, Sir Walter Hotel	May 10-12, 1937
1938-1939 C.C. Fordham Jr., Greensboro*	Asheville, Battery Park Hotel	Jun. 27-29, 1938
1939-1940 Phil D. Gattis, Raleigh*	High Point, Hotel Sheraton	May 15-18, 1939
1940-1941 Joseph Hollingsworth, Mt. Airy*	Charlotte, Hotel Charlotte	May 21-23, 1940
1941-1942 Ralph P. Rogers, Durham*	Durham, Washington-Duke Hotel	May 13-15, 1941
1942-1943 Paul B. Bisette, Wilson*	Winston Salem, Hotel Robert E. Lee	May 11-13, 1942
1943-1944 R.P. Lyon, Wadesboro*	Greensboro, O. Henry Hotel	May 18-19, 1943
1944-1945 W.A. Gilliam, Winston Salem*	Raleigh, Sir Walter Hotel	May 23-24, 1944
1945-1946 W.A. Gilliam, Winston Salem*	Convention was cancelled	War - 1945
1946-1947 E.C. Daniel, Zebulon*	Asheville, George Vanderbilt Hotel	Apr. 14-16, 1946
1947-1948 T.R. Burgiss, Sparta*	Charlotte, Hotel Charlotte	Apr. 27-30, 1947
1948-1949 T.J. Ham Jr., Yanceyville*	Carolina Beach, Hotel Bame	Jun. 8-10, 1948
1949-1950 J.C. Jackson, Lumberton	Durham, Washington-Duke Hotel	May 3-5, 1949
1950-1951 W.R. McDonald Jr., Hickory*	Asheville, George Vanderbilt Hotel	Apr. 23-26, 1950
1951-1952 J. Paul Gamble, Monroe*	Pinehurst, Carolina Hotel	May 20-22, 1951
1952-1953 B.R. Ward, Goldsboro	Pinehurst, Carolina Hotel	May 21-23, 1952
1953-1954 W.A. Ward, Swannanoa*	Pinehurst, Carolina Hotel	May 24-26, 1953
1954-1955 W.L. West, Roseboro*	Winston Salem, Robert E. Lee Hotel	Apr. 11-13, 1954
1955-1956 W.R. Gurley, Windsor*	Greensboro, O. Henry Hotel	May 15-17, 1955
1956-1957 J.W. Tyson, Greensboro	Raleigh, Sir Walter Hotel	May 8-10, 1956
1957-1958 C.D. Blanton, Kings Mountain*	Charlotte, Hotel Charlotte	May 5-7, 1957
1958-1959 W.D. Welch Jr., Washington*	Durham, Washington-Duke Hotel	Apr. 13-15, 1958
1959-1960 Sam W. McFalls, Greensboro*	Asheville, George Vanderbilt Hotel	Apr. 19-21, 1959
1960-1961 Edwin R. Fuller, Salisbury	Winston Salem, Robert E. Lee Hotel	May 8-10, 1960
1961-1962 Robert B. Hall, Mocksville	Greensboro, King Cotton Hotel	Apr. 16-18, 1961
1962-1963 John T. Stevenson, Elizabeth City*	Raleigh, Sir Walter Hotel	Apr. 8-10, 1962
1963-1964 Hoy A. Moose, Mt. Pleasant	Pinehurst, Carolina Hotel	May 12-14, 1963
1964-1965 W.S. Wolfe, Mt. Airy*	Charlotte, Queen Charlotte Hotel	Apr. 12-14, 1964
1965-1966 W.T. Boone, Ahoskie*	Durham, Jack Tar Hotel	May 16-18, 1965
1966-1967 C.D. Blanton Jr., Kings Mountain	Asheville, Battery Park & George Vanderbilt Hotels	Jun. 12-14, 1966
1967-1968 S.D. Griffin Jr., Burlington	Winston Salem, Robert E. Lee Hotel	May 7-9, 1967
1968-1969 James L. Creech, Smithfield	Greensboro, Statler Hilton Inn	Apr 7-9, 1968
1969-1970 Earl H. Tate, Lenoir	Raleigh, Sheraton-Sir Walter Hotel	Apr. 27-29, 1969
1970-1971 B. Cade Brooks, Fayetteville*	Charlotte, Coliseum Downtowner Hotel	Apr. 12-14, 1970

Continued on page 19



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1971-1972 John C. Hood Jr., Kinston	Durham, Durham Hotel	Apr. 18-20, 1971
1972-1973 Donald J. Miller, Morganton	Wilmington, Timme Plaza	Apr. 16-18, 1972
1973-1974 W. Whitaker Moose, Mt. Pleasant	Boone, Center for Continuing Education	Jun. 10-13, 1973
1974-1975 W.H. Wilson, Raleigh	Pinehurst	Mar. 24-26, 1974
1975-1976 L. Milton Whaley, Durham	Pinehurst Hotel & Country Club	
1976-1977 Thomas R. Burgiss, Sparta	Winston Salem, Regency Hyatt Hotel	Apr. 13-15, 1975
1977-1978 Eugene W. Hackney, Lumberton	Wilmington, Wilmington Hilton	Apr. 11-13, 1976
1977-1978 Eugene W. Hackney, Lumberton	Greensboro, Holiday Inn-Four Seasons	Apr. 24-26, 1977
1978-1979 Herman W. Lynch, Dunn	Asheville, Great Smokies Hilton	Apr. 16-18, 1978
1979-1980 Joe C. Miller, Boone	Raleigh, Royal Villa	May 27-Jun 1, 1979
	Fly/Cruise aboard the Sunward II	Jun. 1, 1979
1980-1981 Jack G. Watts, Burlington	Raleigh, Hilton Inn	Apr. 13-15, 1980
1981-1982 J. Marshall Sasser, Smithfield	Charlotte, Radisson Plaza Hotel	Apr. 26-28, 1981
1982-1983 Ernest J. Rabil, Winston Salem	Winston Salem, Hyatt House	Apr. 4 - 6, 1982
1983-1984 David D. Claytor, Greensboro	Boone, Continuing Education Center	Jun. 19-21, 1983
1984-1985 W. Artemus West, Roseboro	Chapel Hill, Hotel Europa	Apr. 8-10, 1984
1985-1986 H. Shelton Brown Jr., Richmond VA	Raleigh, North Raleigh Hilton	Apr. 10-12, 1985
1986-1987 M. Keith Fearing Jr., Manteo	Greensboro, Holiday Inn-Four Seasons	Apr. 20-22, 1986
1987-1988 Julian E. Upchurch, Durham	Charlotte, Adam's Mark Hotel	Apr. 22-25, 1987
1988-1989 Albert F. Lockamy Jr., Raleigh	Asheville, Grove Park Inn	May 18-21, 1988
1989-1990 Ralph H. Ashworth, Cary	Myrtle Beach, SC, Myrtle Beach Hilton	May 17-21, 1989

* Deceased

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Source: Pharmacy Times, October 1988, pp. 67-68. "Industry and Pharmacy: Can They Find Common Ground?"

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According to the NCPHA Constitution and Bylaws, a LIFE MEMBER is one who has been honored by the Executive Committee and voted into LIFE MEMBER status, or any member who has made a one-time payment of \$1,000—which is ten times (10 X) the annual dues. The money from life memberships is invested in the NCPHA Endowment Fund, Inc. Interest, and only interest, from these investments is used to pay the dues for these members who have made a lifetime commitment to their profession. Life memberships are an excellent investment for any pharmacist and is a considerable benefit to the North Carolina Pharmaceutical Association. We urge you to consider this option.

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 Debra Ellis McAulay, Raleigh
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 W. Whitaker Moose, Mount Pleasant
 L. Tim Morgan, Buxton
 Patsy M. Myers, Winston Salem
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 W. Scott Plyler, Salisbury
 Patricia S. Price, Selma
 Sam H. Price Jr., Mooresville
 Renee Cauley Rains, Clayton
 Max G. Reece Jr., Siler City

Continued on page 22

LIFE MEMBERS, *Continued from page 21*

Radford H. Rich, Fayetteville
Hearne F. Rickard II, Kannapolis
Henry B. Ridenhour, Greensboro
C. B. (Benny) Ridout, Morrisville
W. Moss Salley Jr., Asheville
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Susan Fowler Stafford, Charlotte
June R. Stancil, Jamestown
Charles L. Stevens, Benson
Susan Leonard Swepston, Charlotte

William J. (Bill) Taylor, Burlington
Thomas R. Thutt, Kinston*
Kathryn B. Thutt, Kinston*
W. Hoyt Todd, Aulander
Guy O. Tripp, Altavista VA
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Robert W. Worley, Princeton

**Denotes Joint Life Members*



PHARMACY CALENDAR OF EVENTS

May 7	Campbell University School of Pharmacy Graduation
May 7-8	NARD Legislative Conference, Washington, DC
May 13	UNC School of Pharmacy Graduation
May 14	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
May 15	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
May 23	NCPHA/NCSHP/UNC School of Pharmacy 1990 Management Seminar, Research Triangle Park
May 23-26	NCPHA Annual Convention, Research Triangle Park
June 3-7	ASHP Annual Meeting, Boston, MA
June 19	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
June 25-26	NC Board of Pharmacy Licensure Examination, Holiday Inn Four Seasons, Greensboro
July 16	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
July 17	Woman's Auxiliary Board Meeting, Institute of Pharmacy
September 6-9	NCPHA/Campbell University School of Pharmacy 1st Annual Seminar on "Issues in Pharmacy Today", Asheville
September 16	Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination, Location TBA
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 21-25	NARD Annual Convention, Nashville
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas

State Board of Pharmacy News

Pharmacist Members: William R. Adams Jr., Wilson; Harold V. Day, Spruce Pine; W. Whitaker Moose, Mt. Pleasant; W.H. Randall, Lillington; Jack G. Watts, Burlington.

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NEW PERMITS ISSUED

Permits Issued 10/01/89

Phar-Mor
120 South Tunnel Rd.
Asheville, NC

Phar-Mor
2000 Avondale Dr.
Durham, NC

Phar-Mor
3711 Battleground Ave.
Greensboro, NC

Good Scents Apothecary
(Already closed on 11/30/89)
202 A West Court St.
Rutherfordton, NC

Permits Issued 10/13/89

Rite Aid Discount Phcy. (T/O)
1 Church St.
Hayesville, NC

Hayes-Barton Phcy., Inc. (T/O)
2000 Fairview Rd.
Raleigh, NC

Permits Issued 10/16/89

Kmart Pharmacy
40-R Hwy. #24 East
Midway Park, NC

Rite Aid Discount Phcy.
1205 W. Lebanon St.
Mt. Airy, NC

Rite Aid Discount Phcy.
2720 Lake Wheeler Rd.
Raleigh, NC

The Medicine Shoppe
4202 Oleander Dr.
Wilmington, NC

Wal-Mart Phcy.
715 North Norwood
Wallace, NC

Wal-Mart Phcy.
350 Pamlico Plaza
Washington, NC

Permits Issued 11/1/89

Central Carolina Phcy. (T/O) (LSP)
807 Davidson Dr.
Concord, NC

The Medicine Shoppe (T/O)
807 Davidson Dr.
Concord, NC

Permits Issued 11/03/89

King's Phcy. (T/O)
107 Valley River Ave.
Murphy, NC

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BOARD OF PHARMACY

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Permits Issued 11/06/89

Revco Discount Drug Ctr.
2215 Fleming Rd.
Cardinal Crossing S/C
Greensboro, NC

Option Care of Wilmington
2061 Carolina Beach Rd.
Wilmington, NC

Permits Issued 11/09/89

Eckerd Drugs
1700 Raleigh Rd.
Wilson, NC

Permits Issued 11/11/89

Navcare
Pine Green S/C
#60 Hwy. 24 East
Midway Park, NC

Permits Issued 11/20/89

The Medicine Shoppe
917 S. Main St.
Kannapolis, NC

Blue Ridge Phcy. (T/O)
Second St. Hill
N. Wilkesboro, NC

Thorne Drugs of Whitakers (T/O)
Railroad St.
Whitakers, NC

Permits Issued 12/06/89

Stanley Drug Stores (T/O)
1949 E. Seventh St.
Charlotte, NC

Blake Drug (T/O)
200 College St.
Charlotte, NC

Permits Issued 12/18/89

Insti Care, Inc.
212 West Church St.
Nashville, NC

Wal-Mart Phcy.
1527 Garners Station Blvd.
Garner, NC

Wal-Mart Phcy.
Franklin Square S/C
3000 E. Franklin
Gastonia, NC

Wal-Mart Phcy.
210 Greenville Blvd. SW
Greenville, NC

Wal-Mart Phcy.
1430 Cotton Grove Rd.
Lexington, NC

O/P.T.I.O.N. Care
1357 W. Innes St.
Salisbury, NC

Permits Issued 01/02/90

Allied Phcy. Management, Inc.
5024 Parkway Plaza Blvd., Suite 140
Charlotte, NC

Young Phcy.
1909 S. Cannon Blvd.
Kannapolis, NC

Permit Issued 01/03/90

Smith Drug Co., Inc. (T/O)
8 Marion St.
Pilot Mountain, NC

Permits Issued 01/12/90

The Medicine Shoppe of Burlington
(T/O)
605 S. Church St.
Burlington, NC

Piedmont Phcy. of Lawndale, Inc. (T/O)
Lawndale, NC

Permits Issued 01/15/90

Intracare, Inc.
4222 Emperor Blvd. Suite 500
Morrisville, NC

Wal-Mart Phcy.
3909 Pineville Matthews Rd.
Charlotte, NC

Koala Ctr. (T/O)
5010 S. Alston Ave.
RTP, NC

Varners Drug Store (T/O)
Jordan & Broad Sts.
Brevard, NC

Permit Issued 01/26/90

Blue Ridge Hosp. Systems, Inc. (T/O)
(LSP)
Drawer 9
Spruce Pine, NC

Permit Issued 01/30/90

Winn Dixie Phcy. (T/O)
#21 The Commons Hwy. 1 South
Southern Pines, NC

Permit Issued 02/01/90

The Medicine Shoppe (T/O)
2200 N. Pine St.
Lumberton, NC

Permits Issued 02/19/90

Caremark Phcy. Services
4505 Fair Meadow, Suite 209
Raleigh, NC

Yancey Family Pharmacy.
620 West Main St.
Burnsville, NC

Clinicare Home Therapy Services (T/O)
(LSP)
801 Clanton Rd., Suite 113
Charlotte, NC

Permits Issued 02-21-90

China Grove Drug Co., Inc. (T/O)
112 S. Main St.
China Grove, NC

Carmel Family Phcy.
Mercy Hosp. Medical Pk.
10724 Park Rd.
Charlotte, NC

Permit Issued 02/22/90

Harris Phcy., Inc. (T/O)
Main St.
Louisburg, NC

Permit Issued 03/01/90

Monroe Family Phcy., Inc. (T/O)
613 E. Roosevelt Blvd.
Monroe, NC

Permit Issued 03/05/90

Kerr Drug Store
2520 S. Main St., Suite 136
High Point, NC

Permits Issued 03/13/90

Eckerd Drugs
2712-101 Hillsborough St.
Raleigh, NC

American Fare
2401 N. Sardis Rd.
Charlotte, NC

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BOARD OF PHARMACY

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NC Central Univ. Hlth. Serv. Phcy. (LSP)
Student Hlth Service
Durham, NC

Drugs America
Suite 105, 1200 Westchester Dr.
High Point, NC

Permits Issued 03/19/90

Columbus Phcy.
Mills & Gibson Sts.
Columbus, NC

MEDI-OP Phcy., Inc. (LSP)
411 Wall St.
Hendersonville, NC

Medical Center Plaza Phcy.
Suite 201, 1001 Blythe Blvd.
Charlotte, NC

Pharm-Mor
1450 Garner's Station Blvd.
Garner, NC

Revco Discount Drug Ctr.
55 Weaverville Rd.
New Bridge S/C
Asheville, NC

Revco Discount Drug Ctr.
5047 Country Club Rd.
Winston Salem, NC

Nalle Clinic Phcy. (T/O)
1350 S. Kings Dr.
Charlotte, NC

Notes:

**T/O is Transfer of Ownership
LSP is Limited Service Permit**

OMISSION

Due to an oversight on information supplied the *Journal*, the name of Elizabeth A. McBrayer, Wilmington, was omitted from the list of those licensed as a result of examination in the February issue of *The Carolina Journal of Pharmacy*.

LOCAL NEWS

Union County Pharmaceutical Association

Earl S. Ward, Pharm.D., spoke on "Management of Peripheral Arterial Disease" at the February 11, 1990 meeting of the Union County Pharmaceutical Association. Sponsored by Hoescht-Roussel Pharmaceuticals, the program was attended by approximately thirty members. Brenda Lutz-Kiser, local Hoescht-Roussel representative, was responsible for providing the program.

Ward is professor of Pharmacy Practice and Acting Associate Dean at the Mercer University School of Pharmacy. He is also the Associate Director, Pharmacokinetic Services, Georgia Baptist Medical Center in Atlanta.

*Reported by Jim Baucom
Program Chairman*

POST CONVENTION TRIP TO CUNCUN, MEXICO

The NCPHA is sponsoring a three or four day trip to Cancun, Mexico through ITG Travel of Cary. The trip will leave from Raleigh Durham International Airport on Sunday and return on Wednesday or Thursday. The luxurious 4 Star Omni Oasis Cancun will be our destination and the package is attractively priced. Information has been mailed and we are expecting a sell-out. If you have any questions, call NCPHA Central Office in Chapel Hill at 800-852-7343.

DICKINSON'S PHARMACY

by Jim Dickinson

This feature is presented on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting the open discussion of professional issues in pharmacy. Mr. Dickinson is the editor of Dickinson's FDA and Dickinson's PSAO industry newsletters and The Independent Voice, an 8-page practical monthly newsletter, available from Ferdic, Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in the following commentary as they are those of the author and not necessarily those of NCPHA.

Are you tough enough? I didn't say it in so many words, but that's what I meant at the American Pharmaceutical Association annual meeting when I reacted to APhA's powerful draft mission statement.

I questioned only one part of the statement — the part where it gives pharmacists the responsibility for the appropriate use of "devices" to achieve optimal therapeutic outcomes.

The simple act of questioning this aspect should not imply disagreement. Actually, I hope I dare to agree with it — but I wondered out loud if pharmacists, especially the newer arrivals in the profession, have the assertiveness necessary to resist the complaints of prescribers and diagnostic laboratories when they start to have their say on "devices" to patients.

I noted how in recent years, many pharmacists have placidly followed trend-line analyses that have spelled an approaching "ice age" for the entrepreneurial spirit, and the subjugation of retail pharmacy by mail-order drug programs.

Debra Goodman, owner of Gull Road Pharmacy in Kalamazoo, Michigan, took a floor mike at APhA to assure everyone that "yes," pharmacists are aggressive and assertive enough to take on responsibility for devices — and to do a lot more besides.

In short, Debra believes pharmacists are "tough enough" to put runaway mail-order

programs in their place, and the profession on the road that APhA's mission statement has mapped out.

Her words were uplifting. But later that afternoon, at another APhA session, my spirits sank again in a program that seemed to

proclaim pharmacy's submissiveness — not assertiveness — in the face of the mail-order threat.

The moderator disallowed live questions to the

panel, probably to dampen what he feared might become a brawl, and censored more than a few written questions that would have sorely tested the pharmaceutical competence of one of the panelists representing mail-order (Susan Peard, of Mercer Meidinger and Hansen).

One of the censored questions, for example, would have asked Peard how her firm could have found that mail-order pharmaceutical quality is equal to, or better than, retail, when the study upon which that diagnosis was based was conducted by her firm for one client (Mountain Bell) upon another client (Medco/National Rx) without any professional pharmacy input anywhere along the line!

To me, the incident showed the importance of toughness in the defense and advancement of pharmacy's professional value.

Who cares about face-to-face patient counseling, when mail-order program marketers earning salaries in the six figures are able to

Debra Goodman, owner of Gull Road Pharmacy in Kalamazoo, Michigan, took a floor mike at APhA to assure everyone that "yes," pharmacists are aggressive and assertive enough to take on responsibility for devices — and to do a lot more besides.

Continued on page 29

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DICKINSON'S PHARMACY

Continued from page 27

flash bottom-line (and usually false) discount claims in slickly produced multi-media presentations to employers who know only that their health costs are going through the roof?

Countering that sort of effort requires the same kind of fire-against-fire "guts" that the mail-order marketers use (remember how they made Iris Hemmelman's death a non-event?).

Which gets me back to Debra Goodman. How, in the face of so much evidence to the contrary, can she "know" that pharmacists have the aggressiveness and the power to not only answer such challenges, but to win in answering them?

Her answer, when I reached her at home after the APhA meeting, was disarmingly simple — and an inspiration.

Pharmacists need each other, she said. When they get together and realize that they have a common problem, it releases something inside them that has been pent-up.

That "something" is constructive aggression. It's rarely seen because so many pharmacists stay isolated in their practice settings, where they may be easily intimidated by challenges that seem too big and distant to take on.

Debra felt that way herself, once. Then she attended a meeting of her local Kalamazoo pharmacy association, and realized she was not alone. The experience encouraged her to verbalize her interests, and to take up writing.

She wrote columns about pharmacy that the local business and lay media began to pick up. She designed and wrote a startlingly effective single-sheet, eight-panel gatefold brochure promoting her pharmacy, depicting a bright red apple (an apple a day keeps the doctor away, you know) against a black background with green highlights.

She talked with her fellow pharmacists who initially gave an impression of being disinterested, and found them easy to energize. "If they work in an environment that doesn't challenge them, and I tell them what I see, more often than not I get recognition and a conversation ensues that tells me that the knowledge of opportunity is something that they want too. They'll start sharing those feelings with me — something's pent-up inside of them!"

Debra admits that when it comes to pharmacy, she's something of an evangelist. An entrepreneur who has money as a secondary goal to professional enrichment, she

"takes it personally" when she finds a pharmacist who doesn't understand what pharmacy is all about.

The pharmacist who has money as their first goal — as

a distressing number of new graduates seem to — should be screened out by the pharmacy school system before they enroll, Debra believes.

"The question you need to ask yourself as a pharmacist is 'Are you happy doing what you're doing?'" Debra says. The responsibility to be happy lies with the pharmacist, not the practice site, and if they are unhappy it may be because they went for the biggest salary they could get when they graduated.

It's tougher to work for less when you know you can work for more. It's tougher to put professional goals ahead of monetary ones.

It can be tough to break out of the rut you're in and go to the next local association meeting and see what's going on there, and what you can do for yourself in your profession.

But then, being unhappy in your job can be tough, too.

Are you tough enough? •

It can be tough to break out of the rut you're in and go to the next local association meeting and see what's going on there, and what you can do for yourself in your profession.

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THE CAROLINA JOURNAL OF PHARMACY

NUMBER 4

VOLUME 70

APRIL 1990



NCPHA President Ralph H. Ashworth and Mrs. Ashworth. President Ashworth will preside over the 110th NCPHA Annual Convention, May 23-26, 1990 at the Sheraton Imperial Hotel and Towers, Research Triangle Park. (Photo by Qualex-Colorcraft.)

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Across the country, sexually active adults will soon be encouraged to do a special health check called a GSE... a genital self-examination. A simple examination to check for potential signs of a sexually transmitted disease (STD).

The GSE is the heart of a nationwide campaign to heighten public awareness of STDs. This program is sponsored by Burroughs Wellcome Co. in conjunction with major medical associations.*



Sexually active adults will be urged to send for a free guide that explains how to perform a GSE. The guide discourages self-diagnosis and encourages seeing a healthcare professional if anything suspect is found.

While STDs are currently regaining their foothold on the American population, the GSE program offers a promising outlook for reducing their spread.

*The American Academy of Dermatology, the American Academy of Family Physicians, the American College of General Practitioners in Osteopathic Medicine and Surgery, and the American Osteopathic Association.



THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

APRIL 1990

VOLUME 70

NUMBER 4

ISSN 0528-1725

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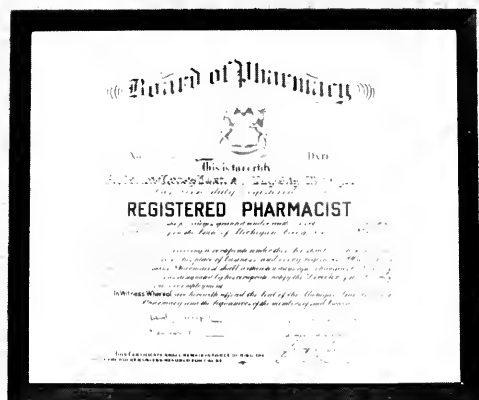
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The *Carolina Journal of Pharmacy* is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.

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PRESIDENT'S MESSAGE



Ralph H. Ashworth, NCPHA President

"Constant Change"

One of my favorite sayings is "There is nothing constant but change." I have found this to be a great truth in the practice of pharmacy since I started 35 years ago. Years ago, if a patient (we called them customers back then) asked about their prescription as in, "Why am I taking this medication?" (we called it a drug) or "What is the name of this drug?" we replied, "You will have to talk to your doctor to get that information." At the time, I think we felt that we would be intruding into the physician's practice of medicine if we answered these questions. However, we did do a lot of OTC counseling.

One of the first revolutionary and debated changes that occurred during my years of practice was putting the name of the medicine on the label. At the time, the *Raleigh News and Observer* canvassed a number of pharmacists and printed their views on this change. Now, years later, we are actually suppose to talk to our patients about their medications—the indications, how the medications work, and the side effects. What is more, in California and in 12 other states, patient counseling is mandatory. What a change!

Change is not easy for most of us, including me. For example, I really didn't want a computer for filling prescriptions because I thought I didn't need it. Now, the computer is an integral part of my pharmacy practice. The computer's capacity to print patient information, search for drug interactions, and

retain financial information for taxes and third party payers is invaluable.

Another heavily debated change that occurred over the years was the requirement of Continuing Education (C.E.). Many pharmacists at the time did not think this was needed. However, with the proliferation of new drugs and the abundance of information to assimilate in our profession, most pharmacists now agree that C.E. is a necessity, as well as a good step towards uplifting our profession. A recent C.E. program, "The 24th Annual Seminar on Socio-Economic Aspects of Pharmacy Practice", held in High Point, March 22, was attended by over 300 pharmacists. After the meeting, one pharmacist told me he had not been in favor of mandatory C.E., but now he is glad it is required. Besides the instruction, he enjoys interacting with other pharmacists, learning about other pharmacists' challenges and problems, and receiving ideas from them. Through these interactions, he feels that he is not working in a vacuum.

There will be many more changes in our profession to which we will have to adapt or be left behind. In fact, a very important meeting sponsored by NCPHA and Glaxo Inc. entitled, "Pharmacy in the 21st Century: Is North Carolina Ready?" was held on April 19, to discuss issues that will impact the profession for the next 20 years. The meeting was a follow-up to the strategic planning conference, "Pharmacy in the 21st Century" in which 17 national pharmacy organizations participated on October 11-14, 1989. Those attending the N.C. meeting were national and state pharmacy representatives and representatives from the NC legislature. Among the issues discussed were the mission for pharmacy practice in N.C. and whether or not there is a need for the pharmacy profession to convince third party payers of the value of pharmacy services. A comprehensive report of this meeting will follow in a future issue of *The Journal*. (See also, APhA's new mission statements on page 9 of this *Journal* issue.)

In closing, I remind my colleagues that change is inevitable. Let us work with it and work together on it. Together, we can raise the profession of pharmacy to an even higher plane. •

1990 PHARMACY CALENDAR

May 30-June 2	NARD Rx Expo '90, Orlando, Fla.
June 3-7	ASHP Annual Meeting, Boston, Mass.
June 19	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
June 25-26	NC Board of Pharmacy Licensure Examination, Holiday Inn Four Seasons, Greensboro
July 16	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
July 17	Woman's Auxiliary Board Meeting, Institute of Pharmacy
September 6-9	NCPHA/Campbell University School of Pharmacy 1st Annual Seminar on "Issues in Pharmacy Today", Asheville
September 16	NCPHA/UNC Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination, Location TBA
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 21-26	NARD Annual Convention, Nashville, Tenn.
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, Nev.

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AMERICAN PHARMACEUTICAL ASSOCIATION

1990 House of Delegates

Actions Adopted by the House - March 13, 1990
Washington, DC

The American Pharmaceutical Association (APhA) House of Delegates adopted a broad range of new policies at its March 13, 1990 final session held during the 137th Annual Meeting in Washington, DC. Below are the motions in the language as adopted by the APhA House of Delegates.

EDUCATIONAL AFFAIRS

A. Pharmacy Schools' Curriculum and Contemporary Pharmacy Practice Needs

1. The American Pharmaceutical Association will work with schools and colleges of pharmacy and pharmacy organizations to address differences between contemporary pharmacy practice and curriculum offerings.

2. The American Pharmaceutical Association encourages pharmacists to cooperate with schools and colleges by participating as preceptors and permitting their practices to be used as clerkship and externship sites.

B. Science and Mathematics Education in Primary and Secondary Schools Defeated.

C. Expansion and Recognition of Internship, Externship, and Clerkship Opportunities

1. The American Pharmaceutical Association encourages schools and colleges of pharmacy to establish and maintain experiential programs in nontraditional areas of practice.

2. The American Pharmaceutical Association encourages state boards of pharmacy to accept, at least on an hour-for-hour basis, hours of clerkship and externship training obtained in nontraditional areas of pharmacy practice as fulfilling internship hour requirements.

PROFESSIONAL AFFAIRS

A. Proper Handling and Disposal of Hazardous Pharmaceuticals and Associated Supplies and Materials

1. The American Pharmaceutical Association supports the proper handling and disposal of hazardous pharmaceutical products and associated supplies and materials by health professionals and by patients to whom such products, supplies, and materials are provided.

2. The American Pharmaceutical Association supports involvement with representatives from other health professional organizations, industry, and government to develop recommendations for the proper handling and disposal of hazardous pharmaceuticals and associated supplies and materials.

3. The American Pharmaceutical Association supports the development of educational programs for health professionals and patients on the proper handling and disposal of hazardous pharmaceuticals and associated supplies and materials.

B. Drug Testing in the Workplace

1. The American Pharmaceutical Association endorses the concept of the "Drug Free Workplace," and recommends that where drug testing is performed in the workplace, it be conducted in conjunction with an employee assistance program.

C. Needle/Syringe Exchange Program in the Prevention of the Spread of Human Immunodeficiency Virus (HIV) and other Infections

1. The American Pharmaceutical Association supports the distribution of educational materials on the risks of sharing needles/syringes with respect to the spread of human immunodeficiency virus (HIV) and other infectious diseases.

Continued on page 8

HOUSE

Continued from page 7

2. The American Pharmaceutical Association supports the objective gathering and analysis of data and information about the effectiveness of pilot needle/syringe exchange programs in preventing the spread of HIV and other infectious diseases.

3. The American Pharmaceutical Association supports needle/syringe exchange programs when part of a comprehensive approach in the prevention of the spread of HIV and other infections.

PUBLIC AFFAIRS

A. Reimbursement for Unapproved Uses of Approved Drug Products

1. The American Pharmaceutical Association supports coverage of Food and Drug Administration (FDA)-approved drugs and pharmaceutical services connected with the delivery of such drugs by government and other third party payers when used rationally for indications other than those specified in the product labeling.

B. Regulatory Infringements on Professional Practice

1. The American Pharmaceutical Association must take a leadership role in the establishment and maintenance of standards of practice for existing and emerging areas in the profession of pharmacy.

2. The American Pharmaceutical Association encourages a cooperative process in the development, enforcement, and review of rules and regulations by agencies that affect any aspect of pharmacy practice, and this process must utilize the expertise of affected pharmacists specialists and their organizations.

3. The American Pharmaceutical Association supports the right of pharmacists to exercise professional judgement in the implementation of standards of practice in their practice settings.

C. Freedom to Choose

1. The American Pharmaceutical Association affirms a patient's freedom to choose a provider of health care services and a provider's right to be offered participation in governmental or other third party programs under equal terms and conditions.

2. The American Pharmaceutical Association opposes government or other third party programs that impose financial disincentives or penalties that inhibit the patient's freedom to choose a provider of health care services.

D. Legalization or Decriminalization of Illicit Drugs

1. The American Pharmaceutical Association opposes legalization or decriminalization of the possession, sale, distribution, or use of drug substances for nonmedicinal uses.

SCIENTIFIC AFFAIRS

A. Federal Funding to Evaluate the Impact of Health Care Policies

1. The American Pharmaceutical Association supports the study of economic, scientific, and social issues related to health care, particularly pharmaceutical services.

B. Facsimile Transmission of Prescription Orders

1. The American Pharmaceutical Association encourages state boards of pharmacy and the Drug Enforcement Administration (DEA) to develop regulations governing the use of facsimile devices in pharmacy practice settings, with regard to such issues as verification of source of order, quality of facsimile transmission and appropriate use with prescription orders for controlled substances.

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NEW MISSION STATEMENTS GUIDE APhA AND THE PHARMACY PROFESSION

The American Pharmaceutical Association is continually developing its strategy to help move the profession and its practitioners into the 21st century. The Board of Trustees of the APhA has proposed two mission statements that will serve to guide APhA as we approach the new century. You may provide your input on the Association's future by mailing your comments to: APhA Planning Program, 2215 Constitution Ave, NW, Washington, DC 20037.

Mission of the Profession

The Mission of Pharmacy is to serve society as the profession responsible for the appropriate use of medications, devices, and services to achieve optimal therapeutic outcomes.

"Society" encompasses patients, health-care providers, health policy decisions makers, corporate health benefits managers, the healthy public and other individuals and groups to whom health care and medication use are important.

"Appropriate" refers to the pharmacist's responsibility to assure that the medication regimen is specifically tailored for the individual patient, based on accepted clinical and pharmacological parameters. Further, pharmacists should evaluate the regimen to assure maximum safety, cost-effectiveness and compliance by the patient.

"Medications" refers to the legend and non-legend therapeutic agents useful in the diagnosis, treatment and/or cure of disease. The term is specifically and purposefully used and is distinguished from the term "drug" which has an extremely negative and non-therapeutic public image.

"Devices" refers to the equipment, processes, biotechnological entities, diagnostic agents or other products which are used to assist in effective management of a medication regimen.

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Mission of the APhA

The Mission of the American Pharmaceutical Association, the national professional society of pharmacists, is to serve its members, enabling them to advance the practice and science of pharmacy.

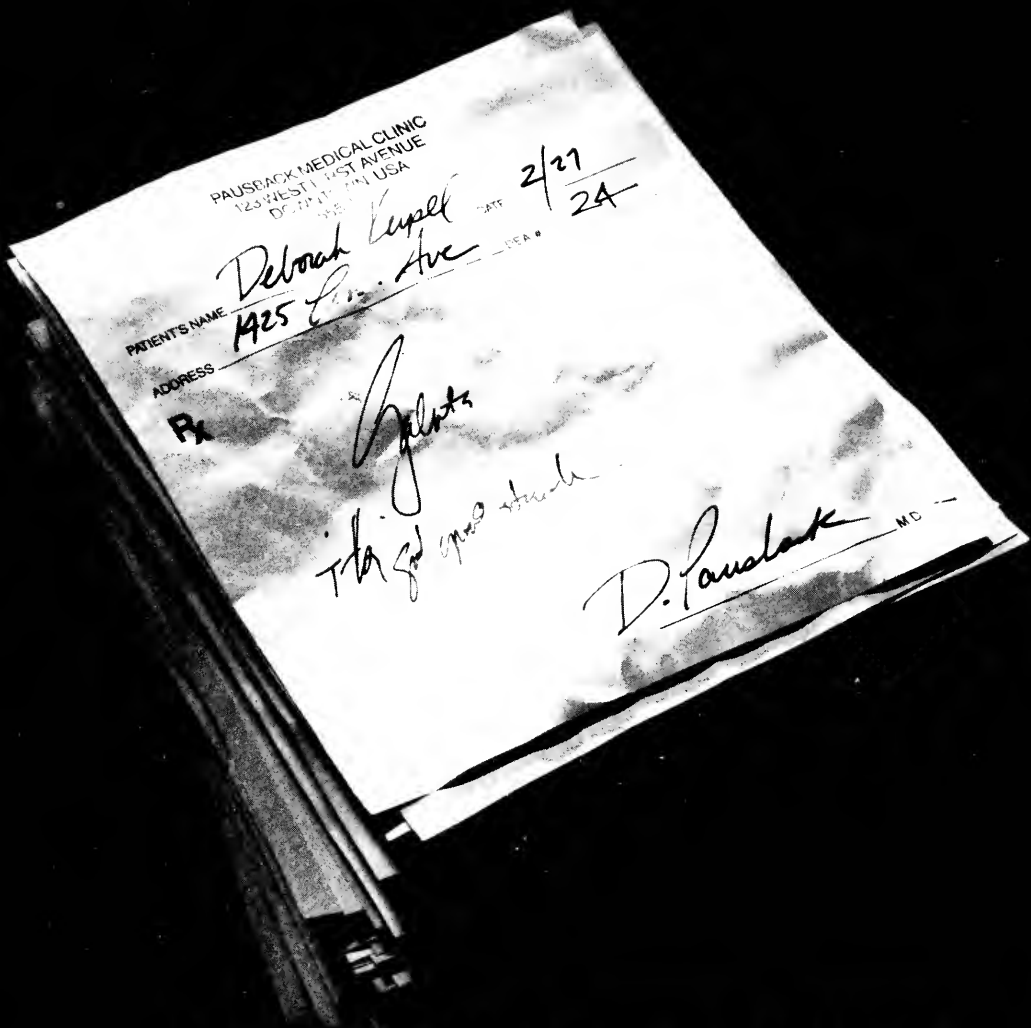
To fulfill the profession's mission, the American Pharmaceutical Association will:

- Enhance and support the profession of pharmacy;
- Provide vision and leadership in developing the continually evolving mission of pharmacy;
- Ensure the integrity of pharmacy through the establishment and enforcement of professional standards and ethics;
- Provide a national, democratic forum for the development of policy to guide and advance the profession;
- Provide activities and services to assist members in achieving practice excellence and professional growth;
- Represent the profession in the public, governmental and interprofessional sectors;
- Efficiently and effectively manage the assets and resources of the Association

To accomplish its mission, the American Pharmaceutical Association will have the following primary goals:

- The promotion, elevation and expansion of the practice of the individual pharmacist;
- The provision of leadership for the profession in the areas of specialization and credentialing in pharmacy practice;

Continued on page 22



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recognized live programs that are comprehensive, interactive presentations.

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For more information on Glaxo C.E., contact your Allen & Hanburys or Glaxo Pharmaceuticals sales representative. Or call P.L.A.N. at 1-800-533-3606 for national C.E. information.

STUDENT FORUM

The Student Forum is a new feature of The Carolina Journal of Pharmacy. This column will contain student editorials and reports of student activities. The content will be directed towards pharmacy students and practitioners who wish to learn about student perspectives on issues and events in pharmacy and what pharmacy students in North Carolina are doing.

Student Perspectives on the 1990 APhA Annual Meeting Washington, D.C. March 10-14, 1990

**Christine Teague, ASP President
UNC School of Pharmacy**

The 1990 APhA Annual meeting and exhibit held March 10-14 in Washington, D.C provided opportunity for involvement by students as well as pharmacists. While many pharmacy students spent their spring break in Florida or the Caribbean, our UNC chapter of the Academy of Students of Pharmacy (ASP) had 25 of its members attend our nation's capital for the national convention.

From the opening social to the closing awards program and reception, our ASP functions included business sessions to vote on ASP proposed resolutions and to elect 1990-91 national officers, where Kevin Sands served as our chapter delegate. The following resolutions were adopted and made part of ASP policy:

(1) Encouragement of the American Association of Colleges of Pharmacy (AACP) to solicit student input as a means to facilitate the exchange of information and ideas regarding all college of pharmacy programs;

(2) Encouragement of state boards pharmacy of to develop regulations governing the use of facsimile devices in pharmacy practice settings;

(3) Discouragement of the practice of offering discounts or coupons which undermine the value of cognitive services provided to patients;

Continued on page 12

**Robert Broyle, ASP Delegate
Campbell U. School of Pharmacy**

The Nation's capital, Washington, D.C., was the site of the American Pharmaceutical Association's (APhA) 137th annual meeting. From the attendance of students, one could tell that the Academy of Students of Pharmacy (ASP) were honored once again to be part of the convention. Meeting and conversing with the people that make our profession the most respected has its advantages.

Between the festivities, the ASP Reference committee held an open hearing to fine tune their proposed resolutions. After testimony from various people, the resolutions were ready to be presented to the delegates from each chapter for voting. Each chapter had one vote with 72 of 74 chapters represented.

Campbell University agreed with all proposed resolutions except the vote to reject unifying the profession of pharmacy by a single academic degree. Being an all Pharm.D. program already, Campbell was in favor of the unification of the profession under this degree. Resolutions that the Campbell delegation was in favor of were as follows:

- Increasing student input into activities of the American Association of Colleges of

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STUDENT FORUM

Continued from page 11

Teague-UNC, Continued

(4) Encouragement of the profession of pharmacy to educate the public about the appropriate use of generic drugs;

(5) Encouragement of face-to-face contact between patients and pharmacists in all pharmacy practice settings;

(6) Encouragement of all state boards of pharmacy to recognize internship hours accumulated during part-time employment while enrolled in classes;

(7) Request of the APhA-ASP Executive Committee to develop a strategic plan to reassume its role as the U.S. and Puerto Rico representative to the International Pharmacy Students Federation; and

(8) Support of the continued use of the title "Academy of Students of Pharmacy".

The following persons were elected as the 1990-91 ASP Executive Committee:

- Mechelle Lewarre, President-Elect (Mercer),
- Bob Mauch, Member-At-Large (Mercer),
- Artee Vashee, Member-At-Large (MCV),
- Monique Jackson, Speaker of the House (Xavier),

Other ASP activities included a leadership seminar featuring Les Brown, an internationally known motivational speaker, and the national patient counseling competition, in which we were represented by our chapter finalist, Sallie Faulstich. Students also took part in the chapter forum, where our school provided a display of activities and sold the now famous "Pharm Side" T-shirt designed by Rick Wallace. The UNC chapter of ASP was also declared one of ten recipients of a \$2000 Merck Student Pharmacy Project Grant, to prepare a drug abuse education puppet video for use as a part of our existing program.

Other opportunities taken advantage of by students in Washington this year included

APhA continuing education programs on how to prepare for the NABPLEX, many sightseeing tours, the NC Pharmacy Breakfast, and the grand manufacturers' exhibit hall. (We may not have come back from spring break with tans, but we have enough pens to last a lifetime!)

All in all, the student members of the UNC chapter of the Academy of Students of Pharmacy that attended the national meeting this year had a great time being able to participate in a wide variety of both social and educational opportunities. We look forward to hosting the ASP Region 3 Midyear Meeting in the fall of 1990 and attending next year's APhA convention in New Orleans!

Broyle-Campbell, Continued

Pharmacy;

- Developing regulations governing the use of facsimile transmission of prescription orders;

- Discouraging the practice of offering discounts which undermine the value of cognitive services by the pharmacist;

- Encouraging complete and valid information along with patient education concerning the use of generic drugs;

- Encouraging face-to-face contact and discouraging health benefit programs which preclude face-to-face interactions between patients and pharmacists;

- Accumulating internship hours according to individual state boards of pharmacy;

- Developing a strategic plan to reassume a commitment for a U.S. and Puerto Rico representative to the International Pharmaceutical Students Federation (IPSF); and

- Accepting a proposal to continue use of the name Academy of Students of Pharmacy.

Late entries were the adoption of changes in the way ASP elections were held and the encouragement of pharmacy schools to have specific guidelines for preceptor activities.

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SKATING ON THE PLATEAUS

This is the eleventh in a series of articles for professionals who manage and managers who lead professionals, and those who are both. Pharmacists operate with one license, but fill many different roles in hospitals, chain stores, individually-owned stores, industry, and educational settings. Along the way, they need a variety of management skills. These articles take a broad perspective on management concepts we hope you will be comfortable applying.

A recent caller, a pharmacist and a former student, noted that some points in earlier articles had struck a resonant chord. She cited the flatness of professional career structures, Peggy Lee's song and "Where do old pharmacists go".

We have grown up expecting success stories, especially in North Carolina. The United States for most of our lifetimes (except when I was growing up during the Depression) has produced expansion and opportunity. Many of us have earned more than our parents, sometimes in our first job after graduation. Yet, even the most optimistic cannot see permanent upward mobility as a realistic likelihood for most young professionals.

Very few of us make it to the very top and most of us end up reaching a plateau in our careers – in our forties, if not earlier. This is true of most professions, not just pharmacy. The role of the professional is very protected, but it is also limited legally and economically.

Defining a Plateau

A plateau in the management literature means reaching a level at which the likelihood of upward mobility in the organization is low. Most managers reach a plateau as the corporate pyramid narrows.

Discussions of plateaued managers have focused largely on problem situations: "shelf sitters," "deadenders," "dead wood," and so



CURTIS P. MCLAUGHLIN, Ph.D.

on. But there is nothing inherently negative about the notion of a career plateau. To say that a person has plateaued tells us nothing about the person's performance on the job, or any other personal and behavioral characteristic. It simply describes that individual's current career status within a particular organization.¹

There are two sources of the plateauing – organizational and personal. The organization may be overstocked with bright young professionals, it may be experiencing very slow growth, or the person may remain most valuable in their current job. Professionals themselves may stay where they are due to lack of technical, managerial or political skills, or simply may not want to move. Some may even practice "creative incompetence" by doing their current job well, but

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CURTIS P. MCLAUGHLIN is Professor of Business Administration in the School of Business and Professor of Health Policy and Administration in the School of Public Health at the University of North Carolina at Chapel Hill. He received his masters and doctorate degrees in Business Administration from Harvard Business School.

PLATEAUS

Continued from page 13

flubbing a little, when they perceive they are about to be promoted.² In the professions, where most promotions come early, most members are plateaued. Most remain "solid citizens" who perform over a wide range from satisfactory to outstanding, but are not on the "fast track" for promotions. So, while management (and management researchers) worry most about poor performers, *the key to productivity in the professions is the motivation of the plateaued professional.*

Managing the Plateaued Professional

There are two types of plateaued professionals - those who are organizationally plateaued and those who are personally plateaued. In each group most are performing satisfactorily and then a few are not. These four states are represented in Figure 1 below.

Satisfactorily performing, organizationally plateaued professionals are likely to become frustrated. They feel ready to move up and sooner or later their morale sags. Therefore, steps are necessary to maintain their performance. Their length of time in that

status and their trend of performance must monitored. Management must tell them honestly that the lack of promotion is not due to their skills or performance, but to other circumstances.

The military use a very bureaucratic promotion review system based on date of receipt of commission. Officers can be promoted early, but if not, they can maintain their cool by watching where they are on the list and calculate when their case is likely to be reviewed. Japanese corporate personnel departments keep track of people by "class." We have to find a parallel to that for our young professionals. Management should give them more accurate information on what is a realistic time to promotion. In some professions like consulting and public accounting there are frequent steps up and a frequent culling of the herd and everyone knows the timing, the steps, and the odds. But many other professional firms, who need a constant supply of licensed professionals and lack the lucrative "outplacements" that accountants and consultants have, are not so structured and suffer for the ambiguity produced. As in so many other situations, *the key to managing the productive plateaued employee is managing their expectations.*

As the time in grade lengthens there are

Figure 1
Types of Plateaued Professionals
Source of Plateaued Status

Professional Performance	Organizational	Personal
Satisfactory	Monitor time and performance Advise of relative status Emphasize personal development Give special assignments	Diagnose Appraise and discuss Offer alternatives Monitor time Monitor preference
Unsatisfactory	Monitor time and performance Advise of relative status Revise psychological contract Monitor and reclassify	Diagnose Appraise and discuss Offer corrective steps Monitor and reclassify

two other things that the organization can do for the employee who is promotable, but can't be moved up yet. The first is further training to enhance their personal and professional capabilities. This gives them a sense of personal growth and also is a signal that the company is still investing in them. The other is to give them assignments that are out of the ordinary to develop their skills and to signal again that the company values them and foresees a solid future. Many young people value personal growth and growing competency above corporate success anyway.

Satisfactory performing, personally plateaued professionals represent a different challenge. They are not promotable or promotable only under limited circumstances. The first step is to be clear as to why this is the issue. Is it lack of potential, lack of skills, or lack of interest? The next step is to communicate to the professional why promotion is not coming to them as rapidly as it is to some of their peers. Next, work with them to find ways of overcoming the blockages to their promotion prospects. This may be training at management or technical skills. It may mean personal counseling to improve interpersonal skills or to accept their own limitations.

The situations where there is lack of interest are hardest to deal with. Managers take a competitive view of life and react negatively to lack of ambition or to values that are centered outside of work. Yet such professionals, if they continue to perform, are really quite valuable, since the ratio of available top to middle level positions is low.

One issue will be that of geographic mobility. With today's dual career family with its emphasis on child-care, family support, and taking turns in education and advancement, it is much more legitimate to give up immediate advancement. The firm with multiple sites usually emphasizes mobility. It should not abandon the employee who is ready for promotion, but unwilling at this time to move. The firm

must 1) keep checking with the employee to see whether or not the psychic reservations and restrictions are still valid, and 2) not overlook that employee when jobs do come open locally. No promotable employee should be in "limbo" just because of past unwillingness to move.

In the case of both kinds of plateaued, but satisfactorily performing professionals, management must do everything possible to bolster their work interest. This includes providing job rotation to rekindle the spark. It must include strong emphasis on in-service training to gain new knowledge and skills. It also should include participative activities for professional employees, especially problem-solving ones, to provide variety, stimulation and a sense of accomplishment. Furthermore, management must continue to emphasize the employee's value to the firm and to society and the value of being on the "firing-line" and doing it well.

We have said little about those professionals who are performing unsatisfactorily. They need to be dealt with the same as any other employee who is not performing adequately. Presumably, they were performing satisfactorily for a while, so one must wonder about the loss of effectiveness. Quite likely, it could be due to lack of some of the preventive measures cited above.

The Profession and Plateauing

Since the pharmacy profession is quite aware of the plateauing issue, there are some things it can do too. The profession can affect expectations on its own. One step is to go beyond distributing data about salaries and to present to its members a picture of what a realistic job progression is. Secondly, it can develop personal benchmarks for professionals to help its members experience a sense of progress outside of the job. The argument for repeat testing for licensure has often been based on avoiding obsolescence. There could be an even stronger psychological benefit from giving people

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AXID®

nizatidine capsules

Brief Summary. Consult the package literature for complete information.

Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chlordiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

Axid® (nizatidine, Lilly)

**Because safety cannot be taken
for granted in H₂-antagonist therapy**

AXID[®]
nizatidine

Minimal potential for drug interactions

**Unlike cimetidine and ranitidine,¹ Axid does not inhibit the
cytochrome P-450 metabolizing enzyme system.²**

Swift and effective H₂-antagonist therapy

- **Most patients experience pain relief with the first dose³**
- **Heals duodenal ulcer rapidly and effectively^{4,5}**
- **Dosage for adults with active duodenal ulcer is 300 mg
once nightly (150 mg b.i.d. is also available)**

References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20:710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
5. *Am J Gastroenterol* 1989;84:769-774.

well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

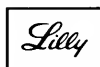
Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

PV 2098 AMP

[091289]

Additional information available to the profession on request.



Eli Lilly and Company
Indianapolis, Indiana
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Frank Anthony Fiscomi, Durham
William Arthur Winquist, Parma, OH
Lynda Phong Yuen, Morgantown WV
John Battista Zatti Jr., Durham



Appointments

Dr. Ronald W. Maddox, Dean of Campbell University School of Pharmacy was recently elected vice-president of the Fayetteville Area Health Education Center Board of Trustees.

W. Bruce Cannon was appointed to the Burke County Health Board as a pharmacist representative for a 3-year term.

N.C. Rep. Brad Ligon, R-Rowan, has been appointed to the Legislative Research Commission's Study Committee on Solid Waste by Speaker of the House Joe Mavretic. As a member of the Substance Abuse Advisory Council, Ligon has studied and provided input on alcohol/drug treatment programs for prison inmates, probationers and parolees. Mavretic also appointed Ligon to the Infrastructure and Local Government Needs Study Commission.

In The News

Edwin Royall, owner of Royall Drug Co. Inc., the oldest drug store in Elkin, announced his retirement in February. Royall has worked in the store since high school when it was owned by his father, George Edwin Royall. He is a 1941 graduate of UNC.

Max Gardner Reece III, Siler City, has entered the race for the vacated State Senate seat in the 16th Senate District (composed of Moore, Chatham, Randolph counties and a portion of Orange county). Reece is a pharmacist-manager for Revco in Siler City. He is a 1977 graduate of the UNC School of Pharmacy. In 1988, Reece received the Bowl of Hygeia Award from NCPHA.

Pungo River Pharmacy had a Grand Opening in a new larger building purchased by owner, **Scott Ellis**, Belhaven. Ellis acquired

the business from his father, James Ellis, after graduating from pharmacy school in 1986.

Brown Drug Co., a China Grove landmark, closed on January 31, 1990. The store was sold by **John Brown & Harry Hauss** to **Charles Chapman & Greg Bowers** on May 1, 1986. Chapman & Bowers, who both own drug stores elsewhere, decided 1989 would be the store's last year of operation.

Awards, Honors, Citations

Dr. Dan Teat, Director of Admissions and Assistant Professor of Pharmacy Practice at Campbell University School of Pharmacy received the Continuing Excellence Award of the NCSHP. The award was established in 1988 to recognize outstanding hospital pharmacy practitioners for continuing contributions to the profession as well as to their community.

Deaths

Hubert Lanier Flynn, Winston Salem, died January 28, 1989. Flynn was founder of Flynn's Drug Store which he opened in 1954 and operated until his retirement in 1974.

Robert I. Cromley, Raleigh, died January 4, 1990. He owned drug stores for 40 years, including the old Sir Walter Hotel Drug Store. He served as Chairman of the N.C. Alcohol Beverage Control Board under the late Governor Dan K. Moore. He was involved in many community organizations and he was local chairman of the N.C. Pharmaceutical Association Convention for three years.

Weddings

Cynthia Ione Creech wed Raeford (Pete) Lee Parrish on January 27, 1990. She is a 1987 graduate of Mercer University-Southern School of Pharmacy. She is a pharmacist at Creech Drug Co. in Selma and an Associate Professor at Campbell University School of Pharmacy.

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AROUND THE STATE

Continued from page 19

Alice Ann Tolbert and **Keith Eugene Kirby** were united in marriage on January 27, 1990. Kirby is a 1983 graduate of the UNC School of Pharmacy. He is employed by Hudson Drug Co. The couple resides in Hudson.

Alice Elizabeth Smith and James Henderson Dillard III were married February 3, 1990. Mrs. Dillard graduated from the UNC School of Pharmacy; she is a staff pharmacist for Kerr D.S. in Cape Cateret.

Allison Marr Uzzell and Kenneth Harlon Neal Jr. exchanged wedding vows on Saturday, September 16, 1989 in St. Paul United Methodist Church in Goldsboro. The bride is a graduate of the University of North Carolina School of Pharmacy. She is a member of Kappa Epsilon pharmaceutical fraternity and Phi Lambda Sigma leadership society. She is employed as a staff pharmacist at Kerr Drug Store in Goldsboro. The couple reside in Goldsboro.

Deana Catherine Watkins of Pinehurst and Don McCoy Mabe Jr. of Laurel Hill were married in a double-ring ceremony Saturday, Oct. 21, 1989 at Pleasant Hill Baptist Church in Hamlet. The bride attended the University of North Carolina at Chapel Hill School of Pharmacy and is a pharmacist at K-Mart Pharmacy in Laurinburg. The groom also attended the University of North Carolina School of Pharmacy and is assistant director of pharmacy at Scotland Memorial Hospital in Laurinburg. The couple resides in Laurel Hill.

Births

Denise and **Paul Ashworth** of Los Angeles, CA announce the birth of Taylor Adams Ashworth on Wednesday, February 21, 1990. Baby Taylor weighed in 5 lbs, 5ozs. She enjoyed meeting her grandparents, Ralph and Daphne Ashworth during a recent visit. •

HOUSE

Continued from page 8

C. Use of Representative Populations in Clinical Studies

1. The American Pharmaceutical Association supports the use of representative populations in clinical studies, including the use of women, minorities, the elderly and children, when appropriate.

D. Reimbursement of Pharmacy Services associated with Drugs Undergoing Assessment

1. The American Pharmaceutical Association recognizes that investigational new drugs play a significant role in the delivery of innovative drug therapy approaches and as adjunctive aids in various diagnostics testing modalities.

2. The American Pharmaceutical Association supports coverage by government and other third party payers for pharmacy services associated with the use of drugs undergoing assessment. •

PLATEAUS

Continued from page 15

something (even something a little bit threatening) to look forward to and overcome. The more we can substitute personal growth and accomplishment for dependence on "job success," the better off the profession will be.

The image in the title has nothing to do with thin ice. When we lived in upstate New York and Massachusetts, we used to flood our back yard in winter to make a skating rink. Children and adults used to skate for hours, ignoring the cold and fatigue. The experienced skater, while staying in a confined space, exhibits an enviable aura of focus, grace, fluidity, power, and purpose. That is what we want for ourselves as professionals as we practice one day at a time.

References:

1. T.P. Ference, J.A.F. Stoner and E.K. Warren, "Managing the Career Plateau," Academy of Management Review, 2, October 1977, p.602.
2. L.Peter and R. Hull, The Peter Principle, New York: Morrow, 1969. •

FROM THE MAILBAG

March 30, 1990

Mr. John G. Medlin, Jr.
CEO and President Wachovia Corp.
P.O. Box 3099
Winston Salem, NC 27150

Dear Mr. Medlin:

I was very shocked to see the letter sent by Mr. Bob Sipprell to the employees of Wachovia regarding their prescription expenses. This letter offered each employee the opportunity to have their prescriptions filled out of North Carolina in Lincolnshire, Illinois by Baxter Healthcare.

In Banking, Wachovia has promoted the concept of "Personal Banker". Likewise, in Pharmacy we always recognized the importance of personal service which goes hand-in-hand with the dispensing of our product. This is backed up by the polls (Louis Harris) that show the profession of Pharmacy being the most respected profession. This has all come about by the personal trust that patients put in their relationship with their Pharmacist. I don't want to lengthen this letter to point out this to you for I'm sure that you are conscious of this. I will be glad to discuss this with you further if you see fit.

I do ask that you reconsider changing this new policy because it sends funds out of state which should be left in our local economy. This is not a very wise move for Wachovia who has always been a good promoter of business in North Carolina.

I have served on my local Board of Managers for about 15 years and have always been proud of the concern Wachovia has for our local and state economy.

I thank you for any action you may take in support of this letter.

Sincerely,
John R. Bowers

April 3, 1990

Blue Cross/Blue Shield of North Carolina
P.O. Box 35
Durham, NC

Dear Sirs:

Just a quick note to register my strong objection to the "discounted AWP" portion of the "Senior card" through PCS, which makes the card unacceptable. It has been my intention to write to you since the first day I saw it. We have always enjoyed a sympiotic relationship with BC/BS whereby the service level I provide is a great "draw" for customers to have you as a provider or processor and the reimbursement you provide generates a great loyalty for these customers to let me be their "exclusive" provider.

I will not bore you with rampant inflationary aspects of either the pharmacy or insurance fields except to say I too have had it with manufacturers' increases on single source drugs and discriminatory pricing and the attendant cost shifting we both understand all too well.

I have always recommended you—to all who ask—as the best provider to have and over my 20 years here I think my endorsement has been positive.

With the cost of obtaining, stocking, dispensing, and administrating payment for our services, it is certainly not dispensing fees that keep us solvent, it is the combination of the "fee" plus how much less than AWP we can obtain where direct accounts are warranted. Fees seem to stay fixed or rise slowly and costs on the type of drugs that are prescribed for people with "good insurance" tend to "gallop" and margins shrink.

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MAILBAG

Continued From page 21

I hope that you will re-design this program so that I can utilize the counter full of electronic gadgetry I possess to process these claims as you intended, but for now the "modem" remains silent when this card is presented.

Sincerely,

J.G. Blount, Pharmacist
Blount's Mutual Drugs
323 South Broad Street
Edenton, NC

MISSION - APHA

Continued from page 9

- The provision of leadership for the profession in legislative and regulatory matters and health policy issues;

- The promotion and effective application of science and scientific information and principles in the practice of pharmacy;

- The development of progressive payment methodologies and for the full range of pharmacy services;

- The provision of information, programs and support systems to assist in their ongoing career development, leadership development and professional growth.

MISSION - PROFESSION

Continued from page 9

"Services" refers to patient, health professional and public education services, screening and monitoring programs, medication regimen management and related activities which contribute to effective medication use by patients.

"Optimal therapeutic outcomes" declares the profession's ultimate contribution to public health. Pharmacy asserts its unique rights—and accepts the attendant liabilities—associated with medication use. Pharmacy recognizes the need to effectively integrate its health-care role with the complementary roles of the patient and other health-care professionals.

STUDENT FORUM

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Another important issue before the student delegate was the elections of officers. Once again, Region 3 gave ASP support. Mechelle LaWarre the new president-elect and Robert Mauch the new member-at-large have made our region extremely proud. Along with these individuals, Dr. Fred Cox from Campbell made his second appearance in two years at the Searle Fellowship Awards ceremony. In 1990 he was the mentor for Penny Shelton who has a second place finish, and Dr. Cox was mentor for Bill Strozyk who won a first-place Searle Fellowship Award in 1989. Elizabeth O'Hamm participated as the patient counseling contestant for Campbell University.

In conclusion, it would be safe to say that all who attended are glad they went. Besides tending to business, many new friends were made. No wonder this was the 137th APHA convention.

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CORRESPONDENCE COURSE
ADVISING CONSUMERS ON OTC ANALGESICS:
ACETAMINOPHEN



Thomas A. Gossel, R.Ph., Ph.D.
Professor of Pharmacology
and Toxicology
Ohio Northern University
Ada, Ohio



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Professor of Clinical Pharmacy
University of Cincinnati
Cincinnati, Ohio

Goals

The goals of this lesson are to:

1. describe the physiologic mechanisms of pain perception and pharmacologic action of OTC analgesics;
2. discuss the pharmacologic, toxicologic and therapeutic uses for acetaminophen; and
3. list specific patient information on methods to maximize acetaminophen's efficacy and minimize adverse effects.

Objectives

At the conclusion of this lesson, the participant will be able to:

1. determine the physiologic mechanism of pain perception;
2. demonstrate an understanding of the pharmacologic and toxicologic mechanisms, and warnings and precautions for acetaminophen;
3. identify specific therapeutic uses and indications for acetaminophen; and

4. choose from a list, specific points for advising consumers on the correct use of acetaminophen.

There are currently three active ingredients comprising OTC analgesics: acetaminophen, aspirin and ibuprofen. They are commercially available in single-entity products indicated for relief of pain and fever. Acetaminophen and aspirin are also included in combination with other ingredients for treatment of these symptoms associated with the common cold.

In this article, topics include the phenomenon of pain and fever, activity of drugs in alleviating them, proposed theories on the pharmacologic and toxicologic actions of acetaminophen, and patient advice to pass on to consumers.

What is Self-Medicatable Pain?

Pain is reportedly the most common symptom for which people seek relief. It is a protective mechanism which signals that something in the body is not functioning properly. Needless to say, it is best to first

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CE COURSE

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determine the cause of pain, and then treat the underlying disease process.

Mild to moderate pain that is temporary and self-limiting may be treated symptomatically by self-medication. But when pain persists longer than 10 days, continues to worsen with therapy, or is particularly severe, the affected person should seek medical assistance. It may signal the presence of a serious disorder.

When the FDA Advisory Review Panel on OTC Internal Analgesics and Antirheumatic Products reviewed the vast literature on nonprescription analgesics, it concluded that the drugs are safe and effective for use in

treating symptoms of occasional, minor aches and pains.

Minor pain, for the purpose of self-medication, is defined as that which is temporary and requires no special treatment or prior diagnosis. It is usually described as mild to moderate, as opposed to sharp, severe and/or protracted. Though no medical treatment is required for minor aches and pains, analgesics may be used to reduce their intensity and provide relief and comfort to the sufferer. These agents may make it possible for some normal daily activities.

Frequent headache, joint pain which flares periodically, or lower back pain which comes and goes may suggest pathologic etiology. These should not be routinely treated with OTC analgesics except on the advice and supervision of a physician.

Fever

The normal body temperature is 98.6°F with a range of 96.5°F to 99.0°F. There is also a diurnal variation in body temperature, with the high point between 3:00 and 5:00 p.m., and the low point between 3:00 and 5:00 a.m. Ovulation, overeating, overdressing on a hot day, and strenuous exercise can raise the body temperature without illness. Certain medications, such as oral contraceptives and antibiotics, may elevate the temperature by a degree. When this occurs, it usually happens during the second week of therapy.

Fever represents the body's natural response to certain illness. Elevated temperatures are inhospitable to microbes, and may help stimulate the body's immune response.

It is best to take a patient's temperature at the same time each day. Slight variations from the normal should be expected. The temperature should not be taken for at least 30 minutes after eating anything hot or cold, or after smoking or brushing the teeth. Fever that persists for longer than three days may represent a serious disease, and the patient should be referred to a physician.

Analgesic Classification

Analgesics indicated for mild pain are chemically divided into two main subgroups: centrally acting and peripherally acting. The former includes agents structurally related to narcotics such as codeine and propoxyphene. Peripherally acting analgesics also exert antipyretic and anti-inflammatory, or possibly antirheumatic, activity. This latter group includes acetaminophen, salicylates and the other nonsteroidal anti-inflammatory drugs (NSAIDs). At the time of publication of this article, ibuprofen is the only non-salicylate NSAID available OTC. Others will follow in the near future.

The nonprescription agents are not as potent for relieving moderate pain as the stronger prescription-only analgesics. But they are effective for their labeled indications.

Pain that responds to OTC analgesics is generally characterized as relatively low intensity. These include headache, muscle pain (myalgia), joint pain (arthralgia), and other discomfort arising from trauma or skin irritation.

Mechanism of Action of OTC Analgesic/Anti-Inflammatory Agents

OTC analgesics are theorized to relieve pain principally by a peripheral action which blocks impulse generation of pain fibers entering the brain. They do not appear to exert overt central activity as do the narcotics. However, their antipyretic (fever reducing) effect seems to be due to central action in the hypothalamus.

In spite of their long history of use, the exact mechanism of action of OTC analgesics has not been identified. The current theory is that they interfere with prostaglandin synthesis. Acetaminophen has a more modest inhibitory action than NSAIDs.

Prostaglandins are produced in all cells. They exert profound physiologic actions in low, even molecular concentrations. Produced in response to trauma and other noxious stimuli, they are involved in the inflammatory response, including alerting the body of a problem, i.e., pain. Some of the physiologic responses for which prostaglandins are implicated respond to acetaminophen therapy. These include pain, fever and dysmenorrhea. The role of prostaglandins in causing pain will be elaborated on in a future article.

Acetaminophen may also inhibit synthesis or action of other (as yet unidentified) substances which sensitize pain receptors to mechanical or chemical stimulation.

Acetaminophen

Though the exact mechanism of action of acetaminophen has not been defined, the drug has been used extensively to treat pain and fever. It was first used in 1893, but did not become popular until the early 1950s.

It was shown in the late 1940s that both phenacetin and acetanilide, two drugs used for decades to relieve pain, were converted *in vivo* to their major metabolite, acetaminophen. With this discovery, acetaminophen use gained renewed popularity.

A major factor in the rapid rise of acetaminophen usage was the implication that phenacetin and acetanilide caused serious renal damage to a far greater extent than acetaminophen. Over the years, acetaminophen-containing products have gained a sizeable share of the OTC analgesic market. In the meanwhile, both phenacetin and acetanilide have been removed from the North American market.

Acetaminophen is as effective as aspirin on a milligram-to-milligram basis for relieving pain of mild to moderate intensity and fever. Used as directed, it is also safe. Its lack of anti-inflammatory action makes it less useful in conditions such as rheumatoid arthritis. However, it may be used to relieve pain due to mild osteoarthritis.

Its use in treating pain and fever in children has now far exceeded that of aspirin. Acetaminophen is not implicated in causing or worsening Reye's syndrome. The association of aspirin to Reye's syndrome will be discussed in a future article.

Acetaminophen is almost completely and rapidly absorbed from the gastrointestinal tract. Following administration, peak plasma concentration occurs in 30 to 60 minutes. The drug is uniformly distributed throughout most body fluids. Its half-life is 2 to 2.5 hours. It is metabolized in the liver, and its metabolites are readily excreted. There is no evidence that it accumulates in the body tissues when taken at recommended doses.



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Table 1
Pediatric Dosing Schedule for
Acetaminophen

Age (years)	Dose (mg)*
0-3 mo	40
4-11 mo	80
1-2	120
2-3	160
4-5	240
6-8	320
9-10	400
11	480

*May be repeated 4-5 times daily; not more often than 5 doses/24 hours.

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Acetaminophen, like other antipyretics, lowers body temperature in patients with fever, but does not reduce it lower than normal. Body temperature regulation is controlled to a large extent by the hypothalamus. During fever, the balance between heat production and heat loss continues to be regulated by the hypothalamus, but the body temperature is set at a higher than normal level.

It is reported that a temperature in the range of 103°F will be reduced by 2 to 3 degrees within 3 to 4 hours of acetaminophen administration (the same is true for aspirin). Then, following a plateau, the temperature increases gradually. As a general rule, antipyretic therapy is not intended to bring the temperature completely back to normal, but to make the patient more comfortable.

When consumers purchase an acetaminophen-containing product, pharmacists should explain the proper use of the product. A 1984 editorial in the journal, *Pediatrics*, stated that some people were unaware of a difference in concentration of acetaminophen elixir and drop dosage forms. Specifically, parents were using the enclosed dropper from the drop dosage form with its

metric dosage recommendation, to administer the elixir. This error led to failure in controlling fever because of inadequate dosage. The authors reported that, in some cases, the motivation for this change in medication appeared to be economic; the more concentrated drop form was five times more expensive than the elixir. In other cases, parents were simply unaware of either the differences in concentration, or the metric equivalents of dropper markings compared to a teaspoon measure.

The total daily dose should not exceed 1.3 gm daily in any child, and should be decreased proportionately in younger children. Although package labels indicated that acetaminophen is not to be used longer than 10 days, this time frame relates to its analgesic use. Used for antipyresis, the drug should be limited to three days. A pediatric dosing schedule for acetaminophen is presented in Table 1.

How Safe is Acetaminophen?

Acetaminophen is safe when used as directed. Taken in recommended doses, it is relatively free of adverse effects in most age groups, even in the presence of a variety of disease states. Unlike aspirin, it does not increase fecal blood loss, cause mucous membrane reactions in patients with gastrointestinal illness, interfere with the action of uricosuric drugs or cause adverse effects on clotting mechanisms in hemophiliacs.

However, several studies have demonstrated small increases in the blood clotting time in patients using acetaminophen. Large doses have shown that a mild methemoglobinemia (oxidized hemoglobin that does not transport oxygen properly) occurs.

A few cases of hypersensitivity have been reported. These are manifested by skin rash and thrombocytopenic purpura (characterized by black and blue patches on the skin and mucous membranes). Rarely, hemolytic anemia (erythrocyte destruction) and/or a serious blood dyscrasia—agranulocytosis (reduced levels of neutrophils and leukocytes—two types of white blood cells) occur.

The only known contraindication to the use of acetaminophen is well-established hypersensitivity to the drug. Care must be taken to assure that a hypersensitive individual does not unknowingly purchase an acetaminophen-containing combination product. Persons who are sensitive to aspirin or ibuprofen can generally take acetaminophen without problem.

Definitive studies are not yet available on whether acetaminophen should be used in patients with preexisting liver disease. Evidence suggests that, in some forms of liver disease, there is decreased conjugation (metabolism) of the drug with an increase in its half-life. This is perhaps significant in toxic reactions to overdoses. For this reason, OTC products containing acetaminophen must display the warning on their label, "Do not exceed recommended dosage because severe liver damage may occur."

Drug Interactions

There does not appear to be any overtly significant drug interactions involving acetaminophen.

Drugs which cause liver damage or induce hepatic enzyme production (e.g., phenobarbital, phenytoin, rifampin) may enhance acetaminophen-induced hepatic toxicity, or metabolism of acetaminophen into its toxic metabolite.

It has been reported that chronic use of high doses (greater than 3 gm daily) of acetaminophen may increase the anticoagulant effects of warfarin, possibly by decreasing hepatic synthesis of precoagulation factors. The clinical significance of this interaction has not been established.

There is a report of interaction between acetaminophen and zidovudine (Retrovir®). Acetaminophen may competitively inhibit metabolism and decrease clearance of zidovudine from the body, thus increasing its toxicity. The same is true of aspirin; there is no information on ibuprofen. Because of the toxicity potential of zidovudine and the medical seriousness of AIDS, patients on zidovudine therapy should not self-medicate.

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Table 2
Clinical Stages of Acetaminophen Poisoning
Clinical Characteristics

Stage	Clinical Characteristics
I (within 24 hr)	Abdominal pain Anorexia, nausea, vomiting Drowsiness Malaise Sweating
II (24-48 hr)	Period of "apparent recovery" Patient feels better Hepatic necrosis begins Urine output slightly decreased
III (3-5 days)	Marked hepatotoxicity Jaundice Coagulation defects Hypoglycemia Hepatic encephalopathy Renal failure Coma Death

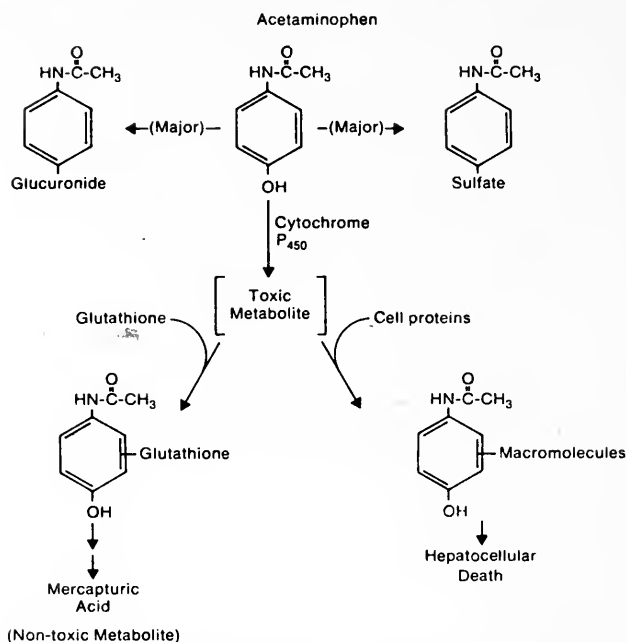


Figure 1. Scheme for acetaminophen metabolism. From Principles of Clinical Toxicology, 1984, Raven Press.

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cate with OTC analgetics without consulting with their physician.

Acetaminophen Toxicity

It was only recently recognized that acetaminophen can cause serious poisoning. Unfortunately, it does not cause an early neurological warning sign of toxicity as does aspirin, i.e., tinnitus. Acetaminophen poisoning is potentially much more serious and lethal than aspirin toxicity because of this.

Table 2 shows the various stages of acetaminophen poisoning. Initially, symptoms such as gastrointestinal distress lessen with time and the individual feels better. If the proper antidoting protocol is not performed early in the course of poisoning, liver damage may occur. Within 2 to 3 days, the damage may be irreversible. Hepatic necrosis is the most serious and devastating toxic effect.

Figure 1 traces the metabolism reactions of acetaminophen in the liver. Metabolism is accomplished primarily by conjugation of acetaminophen with glucuronic acid and sulfate as noted at the top of the figure. Another pathway, which is normally of minor importance, involves formation of a highly reactive and harmful intermediate metabolite. Less than four percent of a therapeutic dose of acetaminophen is normally metabolized by the enzyme cytochrome P_{450} , mixed-function oxidase. The resulting metabolite then reacts with proteins within the hepatic cells leading to cellular necrosis. When acetaminophen is taken in therapeutic doses, glutathione, an amino acid also present within the liver cells, reacts with the small quantity of toxic metabolite to form a nontoxic substance and prevent damaging reactions.

When an overdose (10 to 15 gm for adults; 4 gm or less for children) of acetaminophen is ingested, the liver's enzyme system becomes saturated. The supply of glutathione

Table 3**Consumer Advice for Acetaminophen**

- Do not take this drug for longer than 10 days for pain, or 3 days for fever.
- For children under 12 years of age, do not give this product for longer than 5 days for pain.
- Do not exceed the recommended dosage because severe liver damage may occur.
- Keep this and all drugs out of the reach of children. In case of accidental overdose, contact a doctor or poison control center immediately.

is inadequate to meet the needs of inactivation of the massive quantity of toxic metabolite being formed. This binds with the hepatic cell proteins, and causes their destruction. The result is the liver damage mentioned earlier.

Treatment of Acetaminophen Poisoning

As soon as poisoning has occurred, the victim should be given ipecac syrup to induce vomiting (after having been instructed to do so by a physician or poison control center). Acetylcysteine (e.g., Mucomyst®), given orally, is the specific antidote for acetaminophen poisoning and must be initiated quickly after emesis has been induced. Acetylcysteine enhances synthesis of glutathione and provides free sulfhydryl groups for the toxic metabolite to bind with, thus preventing it from damaging the liver cells. Furthermore, acetylcysteine serves as a source of sulfur to enhance acetaminophen metabolism along its sulfate route, decreasing the amount of drug that would be metabolized by the cytochrome P₄₅₀ system. With acetaminophen overdose, the use of activated charcoal is not recommended since it may interfere with absorption of acetylcysteine.

Summary

Acetaminophen is a safe and effective drug for self-treatment of minor pain, fever and dysmenorrhea, when used correctly. Consumer advice is included in Table 3.

CORRESPONDENCE QUIZ

OTC Analgesics: Acetaminophen

1. Self-medication with OTC analgesics is most appropriate for which of the following types of pain?

- a. Frequent headache
- b. Lower back pain that comes and goes
- c. Joint pain that flares up on occasion
- d. Pain associated with mild osteoarthritis

2. Acetaminophen overdose is most likely to cause toxic effects on the:

- a. liver.
- b. heart.
- c. lungs.
- d. colon.

3. Acetaminophen is a major metabolite of:

- a. phenacetin.
- b. acetylsalicylic acid.
- c. propoxyphene.
- d. acetylcysteine.

4. The drug interaction that is reported to have the greatest potential for significance is between acetaminophen and:

- a. acetohexamide.
- b. tranlycypromine.
- c. warfarin.
- d. zidovudine.

5. The potential result of the interaction described in question #4 above is that acetaminophen:

- a. decreases the metabolism of warfarin.
- b. is inhibited by acetohexamide.
- c. increases the toxicity of zidovudine.
- d. is potentiated by tranlycypromine.

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6. Agranulocytosis is a blood dyscrasia that refers to reduced levels of:

- a. blood platelets.
- b. red blood cells.
- c. granuloma cells.
- d. white blood cells.

7. Which of the following is not recommended for use in treating patients suffering from an overdose of acetaminophen?

- a. Ipecac syrup
- b. Activated charcoal
- c. Gastric lavage
- d. Acetylcysteine

8. With regard to alleviating pain or fever, on a milligram-to-milligram basis,

acetaminophen is best described as being:

- a. less effective than aspirin.
- b. equally effective as aspirin.
- c. more effective than aspirin.

9. OTC analgesics are most effective in alleviating which of the following types of pain?

- a. Sharp
- b. Moderate
- c. Severe
- d. Protracted

10. The amino acid that reacts with the potentially toxic metabolite of acetaminophen to form a nontoxic substance is:

- a. ascorbic acid.
- b. cytosine.
- c. glutathione.
- d. tryptophan.

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April 1989 ZO-995

THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

MAY 1990

VOLUME 70

NUMBER 5

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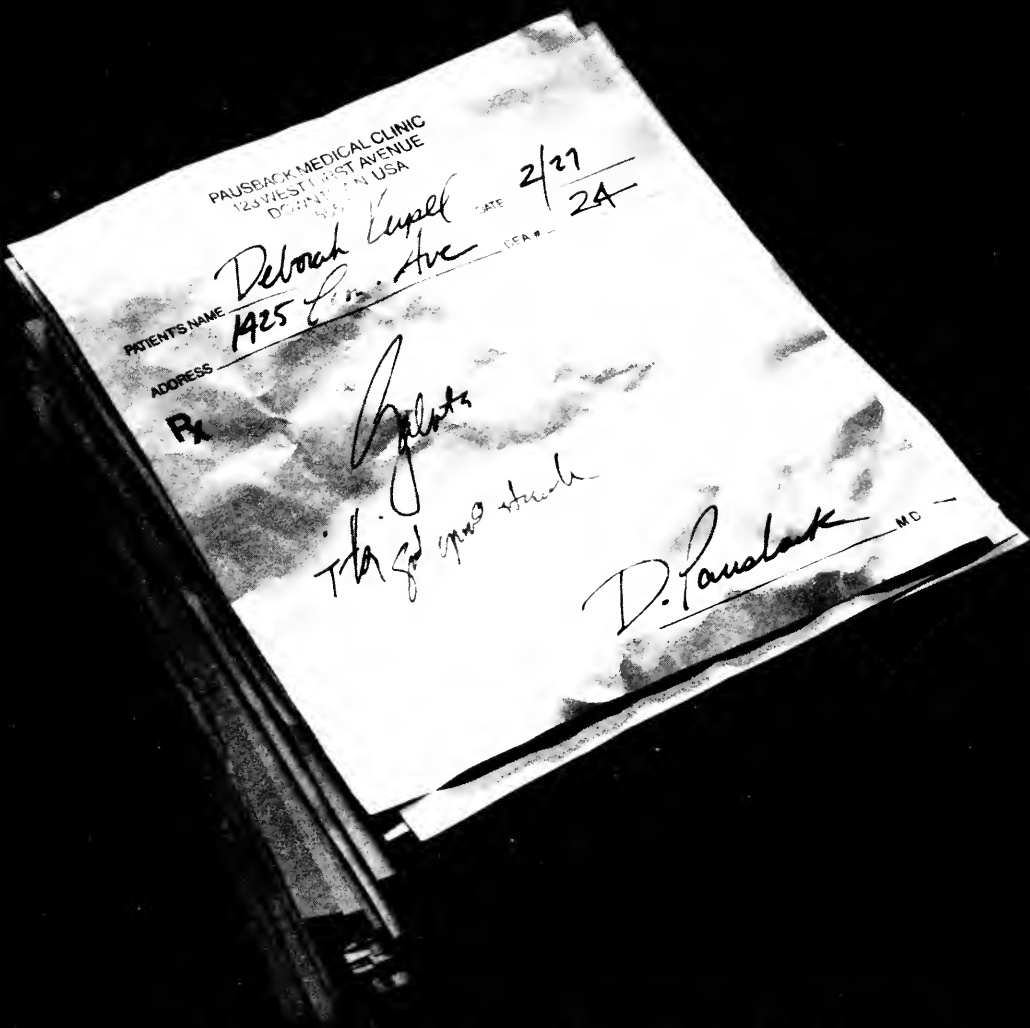
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The *Carolina Journal of Pharmacy* is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.



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MEDICAL EMERGENCIES: HOW PHARMACISTS CAN SAVE LIVES

by Thomas R. Temple, R.Ph., M.S.

Vice Chairman, Medic Alert Pharmacy Task Group and
Executive Vice President, Iowa Pharmacists Association

Emma W. could be your patient. She lives alone, and when a neighbor found the 76-year-old lady unconscious, he transported her to the local emergency department. Her vital signs were compromised—a relative bradycardia, respiratory rate of 32, temperature at 99.4 and blood pressure at 170/110.

Given her compromised cerebral function and age, the likely diagnosis was subarachnoid hemorrhage, possibly from a fall or an intracranial aneurysm. But the slight fever also suggested an infection or inflammation, possibly meningitis. Emma was given I.V. fluids and glucose with no effect.

A CAT scan was ordered to determine if Emma was suffering from a mass lesion in the brain. But when Emma's reports came back from the lab, she had none of the suspected conditions but rather was suffering from a non-ketotic hyperglycemia. She was an undiagnosed diabetic, and the usual symptoms of this disorder were masked because she was taking a beta blocker for hypertension.

If Emma was conscious and had been able to tell the emergency physician that she was taking a beta blocker, chances are her low heart rate and elevated blood pressure would have been attributed to the medication. There would not have been a need for expensive diagnostic procedures.

In emergency care, we, as pharmacists, have a unique opportunity to make a significant difference. Although pharmacists are not usually involved in emergency care, we are right there on the preventive front lines.

This is because we are in the unique position of being able to recognize serious or "hidden" medical conditions in our patients. If these are not known in a timely manner during an emergency, these conditions can easily jeopardize the patient's life. In some emergencies, only a few minutes can make the difference between life and death.

Patients at particular risk during emergencies, according to emergency physicians, are those with chronic or hidden medical conditions, like Emma W. These patients may have diabetes, heart disease or asthma, allergies, sensitivities to certain medications, or may be taking prescribed or over-the-counter drugs like anticoagulants, antiarrhythmics, anti-convulsants, beta blockers and analgesics that could compromise their safety in an emergency.

We see them every day. At least one in four patients who walk through our doors has such a pre-existing medical condition, allergy or other serious medical concern. Especially vulnerable are the elderly like Emma—who are usually taking multiple medications or have physical conditions that compromise their health. In fact, 51% of drug-related problems involve people over the age of 60.

Studies show that the availability of pertinent medical and therapeutic information can significantly affect the outcome of emergency care. In some cases where pharmacists have been helpful in providing essential information about emergency patients, treatment outcome has been improved.

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MEDICAL EMERGENCIES

Continued from page 5

About five million of immediate care emergencies could benefit significantly from the up-to-date medical information provided by the Medic Alert service. Of these five million, literally hundreds of thousands of lives have been saved.

In emergencies, these patients may be unconscious, incoherent or otherwise unable to speak for themselves. A Medic Alert bracelet or neckchain can speak for them, and may well be their link to life. But only if these patients are made aware of Medic Alert.

That's where we, as pharmacists, can play a significant role.

The Medic Alert Emergency Information System

Over 30 years ago, Dr. Marion Collins saw a need for an identification system that could provide help to a patient needing emergency care — anywhere in the world. He established the non-profit Medic Alert International Foundation with headquarters in Turlock, California. Today, more than three million persons from nations around the world are enrolled as members. Medic Alert has 34 years of life-saving service, and serves 32 countries through 21 affiliates throughout the world.

In 1987, Medic Alert set up the National Pharmacy Task Group to encourage pharmacists to reach out to their patients with hidden medical conditions and urge them to become members.

The effort is endorsed by the American Pharmaceutical Association (APhA), the National Association of Chain Drug Stores (NACDS), ASHP, NARD, the National Council of State Pharmaceutical Association Executives (NCSPA), and by some 30 state pharmacy associations. In addition, it is recognized by almost every national

medical and health association in the U.S., including the American College of Emergency Physicians and the American Hospital Association.

The Task Group which guides our national pharmacy program is comprised of leaders from all the major national pharmacy organizations, as well as practicing community, hospital, and chain pharmacists.

Since the program began in 1987, some 120,000 patients have been enrolled. Medic Alert research indicates that as many as 25,000 people have benefitted and over 4,000 lives have been saved as a result of direct intervention by a pharmacist. It is expected that very soon well over half of all pharmacies in America will be participating.

The Challenges Ahead

As impressive as the numbers are relative to the patients we have enrolled and the lives we have saved, we still have much more work to do. The reason: The numbers of new Medic Alert members per pharmacy has not been growing. Consequently, the focal point of our 1990 campaign is to increase the numbers of patients protected per pharmacy. Our goal is for every participating pharmacy to enroll at least five or six new members this year, and every year.

Also, we would like to see more pharmacies participating in this critically important program. Although 20,000 pharmacies are already participating, our target for 1990-1991 is to add another 10,000 pharmacies for a grand total of 30,000 pharmacies actively promoting the Medic Alert service.

Another goal is to help as many pharmacists as possible appreciate how ideally suited they are to identify patients at risk, provide information about the benefits of an emergency medical information service like Medic Alert, and how easy it is to incorporate this message into their daily routine.

There are many opportunities for us to suggest the Medic Alert protection to pa-

tients we know are at special risk — when filling or refilling prescriptions, taking a patient medication history for the patient profile, counseling patients or instructing them on how to take their medications.

To insure that as many pharmacies as possible can offer the service to their patients, patient applications and informational materials are being mailed directly from Medic Alert during the spring and summer months to pharmacists throughout the country to display on counter tops, register locations and in the pharmacy counseling area.

When you receive this material, help the patient fill out the application so that the most up-to-date information about the patient's prescription and over-the-counter medications is recorded.

Pharmacy Continuing Education Program

In order to help pharmacists understand more about particular risks patients run in emergencies, the Task Group is introducing two new features this year — first, a series of Pharmacy Continuing Education programs to be conducted by teams of emergency physicians and clinical pharmacists at most state pharmacy association annual conventions. To help pharmacists in N.C. understand the dynamics of an emergency and learn ways they can help protect the lives of their patients the Medic Alert National Pharmacy Task Group conducted a pharmacy continuing education program "Saving Lives in an Emergency: Three Roles for Pharmacists," at the NCPHA/UNC School of Pharmacy Annual Socio-Economic Seminar, March 22, 1990. The program, which was underwritten by an educational grant from ICI Pharmaceuticals Group, introduced the following series of steps pharmacists can take to become one of the most vital resources in the community for managing medical emergencies.

The three steps for pharmacists are:

- Identifying patients at risk.

- Reaching out to patients who can benefit.
- Assisting emergency physicians and other emergency caregivers in setting diagnostic and treatment priorities.

Public Relations Effort

A high visibility public relations program also underwritten by ICI, has been designed to: raise public awareness about the hidden dangers of medical emergencies, describe this national public health effort by pharmacists, underscore the pharmacist's life saving role, and urge patients to ask their pharmacists for information and applications for the Medic Alert Emergency Information System.

Publicity materials will be distributed to magazines, newspapers and television and radio stations across the country.

On Becoming Involved

Medic Alert is the only non-profit emergency service available. Only Medic Alert provides vital medical information by telephone anytime anywhere seven days a week, 24 hours a day through a highly sophisticated, computerized communications system. It meets the highest standards of service and accountability and complements the pharmacist's role as a knowledgeable, accessible provider of health services and information in the community.

So the next time a patient with a hidden medical condition walks into your pharmacy, take a few minutes to evaluate their medical and therapeutic history, to help them fill out the Medic Alert application form. Just these few minutes may save their life in an emergency.

For information on how to obtain membership enrollment forms and other materials, call 1-800-736-3342, or write Medic Alert Foundation International, Turlock, CA 95381. •

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VALUE OF PHARMACY SERVICES: PERCEPTIONS OF CONSUMERS, PHYSICIANS, AND THIRD PARTY PRESCRIPTION PLAN ADMINISTRATORS*

by Jan D. Hirsch, PhD., Jean Paul Gagnon, PhD, and Ruth Camp

This study was commissioned by the North Carolina Task Force on Pharmacy, a group originated by the N.C. Pharmacy Leaders Forum in 1987. The purpose of the task force was to "collect, formulate, and disseminate material relating to pharmacy with a goal of educating the public, other professionals and payers about the role of pharmacists in health care". The following article contains the results of their study of the perceptions held by consumers, physicians, and third party payers about pharmacists. The authors and task force members invite comments from all interested parties regarding the issue of third party reimbursement for pharmacy services or the specific results of this study. N.C. Task Force on Pharmacy members are: Ron Maddox (Chairman), Betty Dennis, Keith Elmore, Frances Gualtieri, Al Lockamy, Whit Moose, Bill Randall, Chris Rudd, and Joe Whitehead. For further information about the N.C. Task Force on Pharmacy and the N.C. Pharmacy Leaders Forum, see the February, 1990 issue of The Carolina Journal of Pharmacy.

Demand for services by consumer groups historically has not been a driving force in the evolution of pharmacy practice or in health care in general. Traditionally, health care professionals have been viewed as possessing specialized knowledge that society has entrusted to them. Consequently, pharmacists decided what types of pharmacy services patients needed and what was the fair market value of these services.

Today, patients, prescribers, and third party prescription plan administrators are the primary consumer groups actively evaluating and influencing the evolution of pharmacy services.

Patients influence the mix of pharmacy services by choosing among competing community pharmacies. When patients have prescription medications dispensed, they may also be consumers of other pharmacy services such as counseling and drug monitoring.

Many studies of patronage have attempted to determine the importance to patients of specific attributes of a community pharmacy. In general, these studies have consistently found that location or convenience of a pharmacy was the most important reason

for patronizing a specific pharmacy, followed by prices and personnel characteristics. Other studies have focused on the patient's perception of the pharmacist and the pharmacy services provided. Counseling on proper use of prescription and nonprescription drugs and on their side effects and drug interactions is important to patients. However, patients generally do not expect more comprehensive health-related services from pharmacists.

Physicians are also consumers of drug information provided by pharmacists, and this information can assist them in their

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VALUE OF PHARMACY SERVICES

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prescribing decisions. Physicians influence the provision of pharmacy services by expressing demand through the prescribing process. Physician perceptions of the services provided by pharmacists have also been studied, but to a much lesser degree than patients' perceptions have been studied.

A recent survey of physicians revealed that physicians would like pharmacists to inform them of non-compliant patients and of patients possibly experiencing problems with their medications. There seems to be little demand by physicians for more clinical functions such as screening and diagnostic procedures.

The growth in third party prescription plans has made plan administrators an increasingly important group of consumers of pharmacy services. These administrators influence the mix and evolution of pharmacy services through their reimbursement policies. In 1988, third party prescription plans paid for four out of 10 prescription medications dispensed in community pharmacies. Demand for specific types of pharmacy services within third party payer systems has not been systematically investigated to date. Instead, most surveys have focused on cost-containment strategies for drug products and pharmacist fees within third party plans.

This paper presents the results of a study designed to determine which pharmacy services three important consumer groups—patients, physicians, and third party prescription plan administrators—believed were important and valuable. The objectives of the study were to:

- Identify services that patients and physicians would like pharmacists to provide.
- Assess the level of importance that third party prescription plan administrators be-

lieve patients and physicians place on selected services.

- Determine whether third party prescription plan administrators want pharmacists to provide selected pharmacy services to their enrollees.

- Determine whether third party prescription plan administrators would be willing to reimburse pharmacists for the services they want pharmacists to provide to their enrollees.

METHODS

Patient and Physician Focus Groups

Three focus group sessions of patients and two of physicians were conducted in five North Carolina cities during late 1987 and early 1988. Focus groups are panels of 10 to 12 individuals who provide informal, uncensored dialogue about products or services. The patient focus group members were recruited through random telephone calls to households in the target cities and by placing recruitment flyers in 15 to 20 pharmacies in the target cities. Physicians were recruited from actively practicing physicians in the target cities, whose names were provided by pharmacists.

In the focus group sessions, patients and physicians were first asked to generate a list of services they associated with pharmacists and pharmacies. After writing each service on an index card, each subject ranked the services by sorting the cards from most important to least important. This procedure yielded an aggregate rank ordering of the pharmacy services identified by the group. Participants also were asked to comment on their pharmacists' performance. Focus group sessions were audiotaped, and transcripts were produced following the sessions.

Each subject anonymously completed a questionnaire containing demographic information, including age, sex, and number of years in college. Focus group data are usually examined intuitively, and the transcripts of comments are used to support the

researchers' interpretations. In this study a more objective rank ordering of services was also produced.

Plan Administrator Questionnaire

Third party payers must satisfy two primary consumer groups—plan enrollees (patients) and physicians—as well as corporate sponsors. To assess third party prescription administrators' perceptions of pharmacy services, a nationwide mail survey of 60 major third party payers was conducted during the fall of 1988. (The geographic distribution of third party payers required the use of a mail survey rather than focus groups.)

This phase of the study built on the results of the focus groups of patients and physicians. The pharmacy services that were included in the questionnaire sent to third party prescription plan administrators were those that patients and/or physicians had rated most important.

The targeted respondents were administrators with responsibility for prescription drug programs and/or pharmacy reimbursement. A random sample was selected from the mailing lists of the 1987 membership listing of the National Council for Prescription Drug Programs and the 1987 *Health Maintenance Organizations Directory*. There were two follow-up mailings to nonrespondents.

Services similar to those judged important by patients and physicians were listed in the first question on the questionnaire sent to third party plan administrators. Administrators were asked to assume the patient or physician perspective, since part of their role as a third party provider involves satisfying these two pharmacy service consumer groups.

The Statistical Analysis System (SAS) was used to analyze the data. Since this was a descriptive study, data analysis consisted of calculation of frequencies and means for

relevant variables.

RESULTS

Patient and Physician Responses

Demographic data on the members of the patient focus groups indicated that the mean number of prescription orders processed in the previous year was 17 for themselves and 36 for their families. Sixty percent of the participants patronized one pharmacy, and 71% patronized a chain pharmacy. The length of time patients had patronized their current pharmacies was evenly distributed from less than one year to 10 years. Most of the participants (88%) picked up their own prescription medications, and most were married females with a high school education.

Patients were asked to rank order their top eight pharmacy services. "Providing OTC/Rx drug information," "a pamphlet or insert on drugs," "open 24 hours," and "drug expiration date on label" were ranked very important by the patient panel. "Up-to-date about new product," "low prices," "clear directions," "speed," "discusses side effects," "maintains drug records," "dispenses generics," and "refill information" were ranked important.

When asked, patients indicated that they were generally pleased with the services offered by their pharmacists, but they had suggestions for improvement. First, they believed that pharmacists should supply more drug information, perhaps a pamphlet or a computer-generated printout. The more experienced users of prescription drugs knew that pharmacists would supply drug information if asked. The inexperienced users, however, said they never asked and therefore often arrived home with a bottle labeled "Take as directed." Some patients believed that pharmacists were intentionally holding back drug information, because patient inserts were given for some drugs and not for others.

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Another service that patients considered important was the provision of 24-hour coverage. This is a service offered by almost all other health care professionals. The participants suggested that pharmacies could rotate being on call according to a schedule that could be posted weekly in the newspaper. Another suggestion was that pharmacists in a given pharmacy could be on call, with a beeper, on a rotating basis.

Patients complained about having to wait for a prescription medication and having to "pretend to shop." Some wondered why there wasn't a waiting room with chairs and health pamphlets or magazines. Finally, patients said they would like the number of renewals recorded on the prescription label. Patients believed this service would save time when they wanted to have a prescription order renewed.

In summary, the focus group patients were relatively pleased with their pharmacists and pharmacy services but also had many positive suggestions for fine-tuning a pharmacy's services.

The mean age of the physician focus group participants was 39, all were males, and most were in private practice as family practitioners, pediatricians, or internists. They wrote an average of 12 prescription orders a day and talked approximately twice a day to pharmacists. Most of the time (69%), the physicians' nurses telephoned in prescription orders to pharmacists.

The most important services physicians believed pharmacists could provide were "checks and balances function," "monitor drug interactions," "clarify dosage directions," and "good pharmacy personnel." Other highly ranked services were "discussing directions," "health promotion services," "serving as a source of drug information,"

and "cost-effective generics."

Physicians believed that pharmacists were competent and knowledgeable and should be explaining drugs to patients. In general, they liked the idea that pharmacists serve as checks and balances, and they believed that pharmacists were clarifying dosage and storage directions as well as providing drug product information.

Some physicians (and patients) wanted drug expiration dates on prescription labels. Physicians (especially pediatricians) reported they often determine that the patient has on hand a cough syrup or an antibiotic; but because the prescription container has no expiration date, the physician has to call the pharmacist with a new prescription order.

A comparison of the physician and patient focus group results reveals a discrepancy with respect to drug information. Physicians believe that pharmacists are talking to patients about their medications, while patients want more drug information but report that pharmacists are not always providing such information to them. Providing more drug information to patients is certainly one service that pharmacists can perform that would increase patient and physician satisfaction.

Administrators' Perceptions

Of 45 questionnaires returned by third party prescription plan administrators, four were unusable, yielding a 68% response rate. The respondents represented a wide variety of third party payers, from very small third party plans (35 enrollees, 5,000 prescription medications reimbursed per year, and 20 pharmacy providers) to very large plans (8,300,000 enrollees, 100,000,000 prescription medications reimbursed per year, and 62,000 pharmacy providers).

Respondents were asked, "In your opinion, how important are the following pharmacy services to patients?" Importance was rated on a 5-point Likert-type scale ranging

Table 1. Importance of Pharmacy Services to Patients as Perceived by Third Party Prescription Plan Administrators*

Pharmacy Service	Rating from <u>Patient Perspective**</u>	
	Mean	S.D.
Pharmacist personally counsels each patient with a new prescription order.	4.56	0.74
Pharmacist provides counseling on proper dosage and choice of OTC products.	4.52	0.82
Pharmacist advises prescriber of better choice of drug due to lower cost.	4.21	1.01
Phrmacist provides written drug information to the patient.	4.15	0.99
Pharmacist provides physicians with cost data for prescription drugs.	4.07	1.19
Pharmacist provides physicians with periodic new drug updates.	3.77	1.31
Pharmacist advises prescriber of better choice of drug due to therapeutic reasons.	3.46	1.52
Pharmacist offers health promotion programs in pharmacy (e.g., free blood pressure monitoring, cholesterol checks).	3.41	1.16
Pharmacist provides a periodic newsletter on health issues and new drug therapy for patients.	2.85	1.25
*n = 41		
**Scale range: 1 = Unimportant; 5 = important.		
Question stated as "In your opinion, how important are the following pharmacy services to PATIENTS?"		

from "important" (5) to "unimportant" (1). Two spaces were provided for respondents to enter and rate "other" services of their choice. The services are listed in order of their mean importance rating from the patient perspective in Table 1.

The two services that administrators perceived as having the greatest importance to patients were "pharmacist personally coun-

sels each patient with a new prescription" (\bar{x} =4.56) and "pharmacist provides counseling on proper dosage and choice of OTC products" (\bar{x} =4.52). Furthermore, the smallest standard deviations (S.D.) were observed for these services, an indication of agreement among respondents on the importance of these services to patients. "Advising prescribers of better choice of drug due to lower cost" (\bar{x} =4.21) and "providing physi-

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cians with cost data for prescription drugs" ($\bar{x}=4.07$) were rated important to patients. Less traditional roles involving provision of therapeutic or health-related information to patients or physicians (e.g., providing physicians with new drug updates or advising of better drug choices due to therapeutic reasons, and health promotion activities or newsletters for consumers) were rated neutral to slightly unimportant.

Pharmacy services that were written in by administrators and perceived as important to patients were as follows:

- "Classes for patients: Pharmacist teaches patients about medications for specific conditions (e.g., diabetes)."
- "Pharmacist supplies patients with cost of prescription if prescription is a third party prescription."
- "Pharmacist checks for utilization (i.e., overuse and noncompliance)."
- "Pharmacist is actively involved in monitoring compliance with drug therapy."
- "Pharmacist monitors patient-specific drug profiles and informs physician of inappropriate drug use."
- "Pharmacist advises patient a generic equivalent drug is available."
- "Pharmacist consults physician on use of generic drugs."

Differences in third party administrators' perceptions of the value of pharmacy services to patients vs. the value to physicians could influence their assessment of the overall value of pharmacy services. Therefore, the questionnaire also asked for the prescription plan administrators' perceptions of which pharmacy services physicians would rate as the three most important for pharmacists to provide to patients (enrollees).

The rankings for perceived importance to

physicians generally paralleled those for perceived importance to patients. The majority (56%) of administrators believed that the "pharmacist personally counseling patients with new prescriptions" was the most important pharmacy service to physicians. Approximately one-quarter of the administrators indicated "Providing counseling in proper dosage and choice of OTC products" and "providing written drug information to the patient" would be second most important to physicians. Providing nonprescription drug counseling ranked as the third most important service for almost one-quarter of the respondents.

After rating the importance to patients and physicians of the listed services, administrators were asked to indicate which services they believed pharmacists were currently providing for the enrollees (Table 2). The majority of administrators believed that pharmacists were offering the four services rated most important to patients and physicians: "new prescription counseling" (60.5%), "OTC counseling" (70%), "advising prescribers of better drug choice due to cost" (55%), and "providing written information to patients" (52.5%). A large proportion also believed that pharmacists were performing two information-related services that received lower importance ratings: "offering health promotion programs" (47.5%) and "advising prescriber of better drug choice due to therapeutic reasons" (37.5%).

If administrators believed that pharmacists were not currently offering one of the listed services, they were asked to indicate whether their company would be willing to pay pharmacists to offer the service to their enrollees. This question was presented only to the subset of respondents who believed pharmacists were not currently providing a service, because it was thought unlikely that administrators who believed pharmacists were already performing a service would begin to pay pharmacists for the service.

Approximately one-third of respondents who did not believe pharmacists currently

Table 2. Third Party Prescription Plan Administrators' Perception of What Pharmacy Services are Currently Offered*

Pharmacy Service	Thought to Be Currently Offered	
	No.	%
Pharmacist personally counsels each patient with a new prescription order.	23	60.5
Pharmacist provides written drug information to the patient.	21	52.5
Pharmacist advises prescriber of better choice of drug due to therapeutic reasons.	15	37.5
Pharmacist advises prescriber of better choice of drug due to lower cost.	22	55.0
Pharmacist offers health promotion programs in pharmacy (e.g., free blood pressure monitoring, cholesterol checks).	19	47.5
Pharmacist provides counseling on proper dosage and choice of OTC products.	28	70.0
Pharmacist provides a periodic newsletter on health issues and new drug therapy for patients.	6	15.0
Pharmacist provides physicians with cost data for prescription drugs.	7	17.5
Pharmacist provides physicians with periodic new drug updates	7	17.5
*n = 40		
Question stated as "Please place a check under 'Offer Now' for services you believe pharmacists currently provide to your enrollees."		

"advised prescribers of better drug choices due to lower cost" or "counseled patient with a new prescription" would pay pharmacists to do so. Almost 20% of respondents who did not believe pharmacists "provided patients with written drug information" or "provided physicians with cost data for prescription drugs" would pay pharmacists to do so. Two respondents wrote in a service they would be willing to pay pharmacists to

provide their enrollees: "dispensing generics when physician writes 'dispense as written'" and "monitoring patient compliance (e.g., antihypertensive therapy)." (The legal ramifications of the first write-in service will vary by state.)

In addition to identifying which services they would be willing to pay for, administrators were asked to indicate "how much of an

Continued on page 18



AXID®

nizatidine capsules

Brief Summary. Consult the package literature for complete information.

Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chlordiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

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once nightly (150 mg b.i.d. is also available)

References

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well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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VALUE OF PHARMACY SERVICES

Continued from page 15

incentive your company would be willing to pay pharmacists (in aggregate) to perform the desired services." They were given the option of phrasing their incentive in terms of unit of service, time, or patient (e.g., \$x.xx per prescription order, \$xx.xx per hour, \$xx.xx per enrollee). Only eight respondents answered this question. The stated incentives ranged from \$0.10 to \$3.00 per prescription order. Only one respondent phrased the incentive as a rate per enrollee (\$5.00).

The relationship between number or type of services and incentive value offered was not clear from the data. There was no obvious rationale that could correlate the number of services or time required to provide service(s) with the incentive value.

Two administrators suggested another type of incentive for pharmacists: providing pharmacy services (not specified) through an exclusive business contract with the third party payer.

Administrators were asked if their companies would consider implementing a structured pharmacist incentive plan to improve enrollee satisfaction. Slightly more than one-third of the respondents said yes. Three primary reasons were given for not implementing a pharmacist incentive plan:

- The plan would be too costly.
- Pharmacists should already be providing such services as part of their professional responsibilities.
- Enrollee satisfaction is already high.

Four respondents indicated they would implement an incentive plan only if it would decrease total plan costs. Cost concerns were paramount, while reasons for implementing a pharmacist incentive plan were less clear (e.g., "pharmacists have some-

thing to offer," "would increase commitment to HMO," "strive for customer satisfaction").

In a related question, administrators were asked to rank proposed mechanisms for monitoring patient/enrollee satisfaction in an ongoing basis if a pharmacist incentive plan based on enrollee satisfaction were implemented. Since only a small portion of the administrators perceived a need for such an incentive plan, it was not surprising that only 16 respondents answered this question.

When asked to rank ideas for monitoring patient satisfaction, administrators most frequently ranked conducting a periodic survey of a sample of enrollees (31.3%) and sending trained observers posing as "shoppers" into a random selection of member pharmacies (37.5%) as the best ideas. However, an equal number of respondents ranked enrollee surveys as the worst idea. Providing enrollees and physicians with complaint forms was rated the second best idea by almost half (46.7) of the respondents to this question.

DISCUSSION

Patient and Physician Need for Services

The results of this study indicated that the patients and physicians wanted personalized services related to their medications. Evidence of growing patient demand for information is apparent in today's society. Pharmacists offering patient-oriented services consistently would be well positioned to garner an important and growing segment of the prescription drug market.

Plan Administrator Perceptions of Need

There is also a demand by third party prescription plan administrators for specific pharmacy services. The results of the third party survey indicated that administrators believed patient counseling on both pre-

scription and nonprescription products, providing cost data about drugs to physicians, and providing written drug information to patients are pharmacy services that are important to consumers. Since third party payers must satisfy their corporate sponsors by satisfying corporate enrollees (patients) and, to a large extent, the prescribers (physicians), it would be logical to assume that third party payers would value these services in monetary terms.

However, overall, third party payers did not appear to be willing to translate perceived importance into incentives for pharmacists to provide specific services or any array of services listed in the survey. Most of the respondents believed that pharmacists were already providing the majority of services listed. Therefore, it is unlikely that third party payers will begin to pay for a service their enrollees are already receiving. In addition, for those respondents who did not believe pharmacists were providing a service, only a small percentage were willing to pay for the service. Only two of the listed services could be construed to be candidates for pharmacist payment: "advising prescriber of better choice of drug due to lower cost" and "personally counseling each patient with a new prescription."

When the administrators were asked about their companies' intentions for implementing a pharmacist incentive plan, the most frequently reported reason for not implementing such a plan was increased cost. Thus, it appears that providing administrators with evidence that enhanced pharmacy services will increase overall program cost savings as well as patient satisfaction may be a more productive step toward implementing pharmacy incentives than promoting only the potential of increased patient satisfaction.

Although the results of this study do not appear to be encouraging to pharmacy as it seeks to gain specific reimbursement for services, a limitation of the third party survey tempers the conclusions drawn: third

party respondents were provided with a list of specific services based on the results of the patient and physician focus groups.

To the extent that the listed services were not comprehensive, perceived value of pharmacy services by third party prescription plan administrators has not been fully assessed. In fact, the number of services written in by administrators suggests that the listing was not complete.

Two areas revealed in the write-ins that appear to be potentially of demonstrable value to a third party payer were the pharmacist's role in monitoring drug therapy and the pharmacist's role as patient educator. The perceived value of these and other similar services to third party payers should be explored, and studies demonstrating the impact of these services need to be conducted before administrators will perceive them to be truly "value added" services.

With sound experimental data as supporting evidence, these types of services could be perceived by third party prescription plan administrators as being more likely to result in savings than in additional cost.

References: Available on request. •

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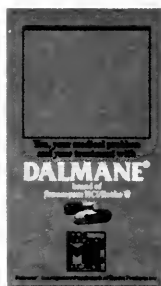


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PHARMACIES: WILL INSURERS CHOOSE FOR US?

by Elizabeth A. Meade



Elizabeth Anne Meade (center), a rising fifth year UNC School of Pharmacy student, was the honored recipient of the Ralph Peele Rogers Sr. Pharmacy Administration Award at the 12th Annual Memorial Award Dinner, April 26, 1990. Also pictured here are J. Clinton Rogers (left) and Ralph Peele Rogers Jr.

All over the nation pharmacists are rallying in support of legislation concerning the right of patients to choose the pharmacy they wish to patronize. Without regard for the patient/pharmacist relationship or quality of care, preferred Provider Organizations (PPOs), Health Maintenance Organizations (HMOs), and other insurance providers are engaging select pharmacies in exclusive contracts to provide pharmaceutical products and services in an effort to contain rising health-care costs. While the ever-increasing cost of quality health care generates a great deal of concern, efforts to control it must be directed toward achievement of this goal without causing detriment to the quality of care provided or to the institution of pharmacy.

The scope of the freedom of choice issue is very broad, encompassing the entire United States. Evidence of nationwide concern is seen in the affirmation by the Bush Administration that examination of the problem is not only necessary as well. In his State

Continued on page 24

The Ralph Peele Rogers Sr. Pharmacy Administration Award is presented annually to a fourth year pharmacy student at the UNC School of Pharmacy for excellence in pharmacy administration and an expressed interest in community pharmacy. The award is sponsored by Ralph Peele Rogers Jr., Joseph Clinton Rogers, and Elizabeth Rogers Millar, sons and daughter of the late Ralph P. Rogers Sr.

WILL INSURERS CHOOSE?

Continued from page 23

of the Union message, Bush called for a "review of recommendations on the quality, accessibility, and cost of our nations health care."¹

The remarks made by President Bush reflect the reservations of consumers and pharmacists across the country. The public and pharmacists alike are concerned that patients are being denied the level of care to which they are entitled. A survey of HMO subscribers within the Boston area, conducted by the Massachusetts State Pharmaceutical Association, found that three-fourths of those surveyed were in favor of freedom

A survey of HMO subscribers within the Boston area...found that three-fourths of those surveyed were in favor of freedom of choice

of choice legislation. In addition, almost half of the respondents who were required by their insurance plans to utilize a single pharmacy chain were unhappy with this restriction.²

As well as expressing dissatisfaction with the effects of exclusive contracts on quality of care, independent pharmacists, in particular, are demonstrating increasing concern about the impact that these contracts will have on their businesses. In a great number of pharmacies, third party prescription business constitutes a significant percentage of the total prescription volume. Loss of this source of revenue could very easily force many independent stores to close their doors. For example, the Department of Social Services in Grand Junction, Colorado recently entered into such a restrictive, anti-competitive agreement with an HMO. A single drugstore chain is the exclusive provider. As a result of this action three independent retail pharmacies in the area have gone out of business.²

There are some plans which allow patients to use a pharmacy different from the one specified in the agreement; however, the patient must absorb a larger percentage of the cost of prescriptions, pay at the time services are rendered and be reimbursed later, or endure other discriminatory practices which are not borne by those who patronize the preferred pharmacy. This is the case for beneficiaries of Blue Cross/Blue Shield of South Carolina who must purchase their prescriptions from a Revco or Eckerd store unless they are willing to pay upfront and wait for eighty percent reimbursement at a later time.³

Even though Eckerd benefits from this and other exclusive agreements the extreme importance of the issue can be seen in the statements made by Steward Turley, President Jack Eckerd Corporation. At the recent National Association of Chain Drugstores Small Chain Conference, of which Turley is chairman, he stated that he "(believes) that we should have freedom of choice across the board (in both private and public-funded plans)".⁴ Independent and chain pharmacists, alike, find fault with the destruction of freedom of choice and are urging legislators to move toward regulation of these restrictive practices.

Currently, eight states have enacted some type of legislation regarding the freedom of choice issue. These states include Alabama, Colorado, Connecticut, Illinois, Maryland, North Dakota, Oklahoma, and Wisconsin; many others are likely to follow as they have similar bills pending in their legislative houses or are in the process of considering action.⁵ Minnesota, Pennsylvania, Alaska, and Delaware are among this second group and have begun using the "Consumer Freedom of Choice Legislation Manual" created by the NARD Department of Government Affairs at the request of state associations.⁶

The legislative efforts of those states which have been successful and those that continue to work toward limitation of the restric-

tive activities of insurers are producing laws addressing various aspects of the problem. The Massachusetts freedom of Choice Bill, if enacted, will require HMOs to account for consumers who wish to continue to use the pharmacy of their choice.⁷ While this approach is certainly "a step in the right direction", it falls short of the expectations of many since it does not address the discriminatory aspects of the issue. It does not prohibit the use of negative incentives which discourage the use of pharmacies other than the preferred one(s). The California bill is too vague as it also does not speak to disincentives; it does, however, allow the patient to select the pharmacy and provides equal opportunity for participation of all pharmacies as long as they are willing to meet the requirements specified in the contracts.² The Connecticut, North Dakota, Alabama, and Oklahoma statutes do speak to the issues mentioned above as well as the need for regulation of disincentives with respect to freedom of choice.^{2,5} The Colorado statute differs from others by referring specifically to government programs.⁵

While many pharmacists lobby for bills currently under examination, opponents argue that such legislation violates ERISA or the United States Constitution. ERISA governs pension and welfare plans including prepaid pharmaceutical programs and was designed to preempt all state laws. However, there has been a great deal of congressional concern regarding the possibility of overriding areas traditionally governed by the states, specifically insurance. Therefore, Congress continues to allow states to regulate insurance regardless of ERISA thereby making violation of ERISA an invalid argument in this case. In addition, opponents cite the commerce clause of the Constitution which disallows states to inhibit interstate commerce.

Some freedom of choice legislation has indirect effects on interstate trade, especially those bills involving copayments and mail-order services; however, statutes which benefit public health, safety, and welfare are

likely to be upheld by the courts even in light of trade restriction.⁵ Since Congress may very well uphold these laws regardless of ERISA and questionable constitutionality, those in opposition of them have only a weak, if any, legal argument.

All pharmacists have a professional obligation to support provisions which ensure quality of care for all through the establishment and maintenance of sound patient/pharmacist relationships and commitment to patient care. In doing so, pharmacists must remain in the forefront of the freedom of choice issue in order to prevent insurance providers from dictating which pharmacies patients will patronize, thus preserving pharmacy and the quality of service it provides.

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CORRECTION

Denise and **Paul Ashworth** are the proud parents of a new baby boy, Taylor Adams Ashworth. He was incorrectly referred to as a she in our last issue—Ooops!

WELCOME, NEW MEMBERS!

Amy Darrow, *Lexington*
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William H. Edmondson (right), Vice President, Glaxo Inc. presents a \$5,000 check to Mrs. A.H. Mebane III, President, Woman's Auxiliary, NCPHA, which will be used to support an annual scholarship for the Campbell University School of Pharmacy.

Last fall, the Woman's Auxiliary (WA) of the NCPHA established an endowment fund to support an annual scholarship for the School of Pharmacy at Campbell University. The earnings from the investment will be used for the scholarship.

The Auxiliary initiated the fund with a grant of \$3,000.00. To date, \$11,590.00 has been raised—\$3,410.00 short of the targeted \$15,000.00 goal. On April 7, a \$500.00 scholarship was presented to Kimberly Barbee, Gastonia, by Mrs. A.H. Mebane, President, WA, on the Fourth Annual Parents Day, at Campbell University. Ms Barbee will graduate in May 1991.

now 240 students in the four classes. Last fall, there were more than four applicants for each space available in the four classes. On May 7, the charter Pharmacy Class of Campbell University graduated. One hundred percent of this class were active members of the Student Branch of the North Carolina Pharmaceutical Association.

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Four years ago, Campbell University established a School of Pharmacy. There are

Continued on page 28

WA SCHOLARSHIP

Continued from page 27

Auxiliary members hope to reach the \$15,000.00 goal, soon, and next year, be able to award a larger amount. Auxiliary members serving on the Campbell Scholarship Fund Committee have each pledged \$100.00 to show their support.

Your contribution can be made by sending your check to:

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Mr. and Mrs. W. H. Randall, Dean & Mrs. Ronald Maddox, W. R. Pope, Mrs. Keith Fearing, Mr. and Mrs. A.H. Mebane III, Harnett County Pharmaceutical Association, Mrs. Larry Good, Mr. and Mrs. Lamar Morse;

\$250.00: North Eastern Carolina Pharmaceutical Society, Carolina Medical Products-Henry Smith;

\$1000.00: Rockingham County Society of Pharmacists, Mr. and Mrs. Howard Q. Ferguson;

\$3000.00: Woman's Auxiliary, NCPHA;

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FROM THE MAILBAG

Mr. Ralph Ashworth, President
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Dear Ralph:

It was a pleasure to talk with you by telephone this morning. As indicated, I agree wholeheartedly with the thoughts expressed in your letter about the advantages of doing business with local people and firms which can provide personalized service.

The option to purchase pharmaceuticals on a bulk basis was offered in response to employee demand. The indication thus far is that very few actually are using it. The main interest seems to be on the part of retirees with expensive and repetitive pharmaceutical needs. Most of us still recognize and appreciate the advantages of shopping at our home town pharmacies.

We didn't have much choice by to offer this option. You can rest assured Wachovia has not turned its back on local pharmacists of North Carolina. Instead, we remain most eager to work together with neighbors in the various communities to keep as much business at home as possible. Hopefully, our employees patronize those who bank with them.

It is interesting to note that banks face some of the same kind of out-of-state competition. Money market mutual funds offer some of the same allure as bulk purchase pharmaceuticals. However, they do not finance home grown businesses, create local jobs, or work on civic improvement projects.

I enjoyed our conversation and hope to meet you someday. Meantime, you have my best wishes for a successful term as President of the North Carolina Pharmaceutical Association.

That is a real tribute to your leadership and professionalism.

Sincerely,

John G. Medlin, Jr.
Chairman, President, and
Chief Executive Officer
First Wachovia Corporation
Winston-Salem, North Carolina 27150

1990 PHARMACY CALENDAR

June 19	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
June 25-26	NC Board of Pharmacy Licensure Examination, Holiday Inn Four Seasons, Greensboro
July 16	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
July 17	Woman's Auxiliary Board Meeting, Institute of Pharmacy NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 6-9	NCPHA/Campbell University School of Pharmacy 1st Annual Seminar on "Issues in Pharmacy Today", Asheville
September 16	NCPHA/UNC Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination, Location TBA
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
November 21-26	NARD Annual Convention, Nashville, Tenn.
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, Nev.

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THE CAROLINA JOURNAL OF PHARMACY

NUMBER 6

VOLUME 70

JUNE 1990



J. Frank Burton, NCPHA's new president, was installed at the 110th NCPHA Annual Convention, May 23-26, 1990. See the President's Remarks on page 5. Also, learn about the newly introduced national legislation, the PAPPA, on pages 7-9, 11, and 13.

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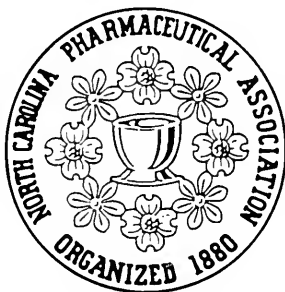
Because stores would need extra merchandise, trucks rolled again on Saturday, stocked with supplies we knew would be in demand, such as distilled water. On Monday, September 25th, a special truck was sent to Greensboro and Burlington to secure more batteries and distilled water. This truck's return was delayed until 10:00 pm, and only through extra efforts of the night crew were we able to deliver these products the very next day.

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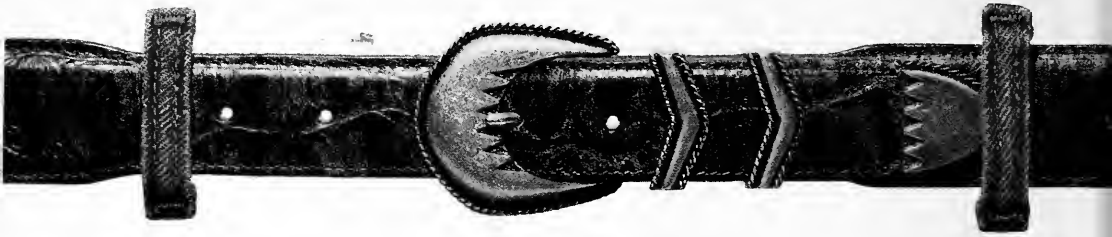
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While STDs are currently regaining their foothold on the American population, the GSE program offers a promising outlook for reducing their spread.

*The American Academy of Dermatology, the American Academy of Family Physicians, the American College of General Practitioners in Osteopathic Medicine and Surgery, and the American Osteopathic Association.



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THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

JUNE 1990

VOLUME 70

NUMBER 6

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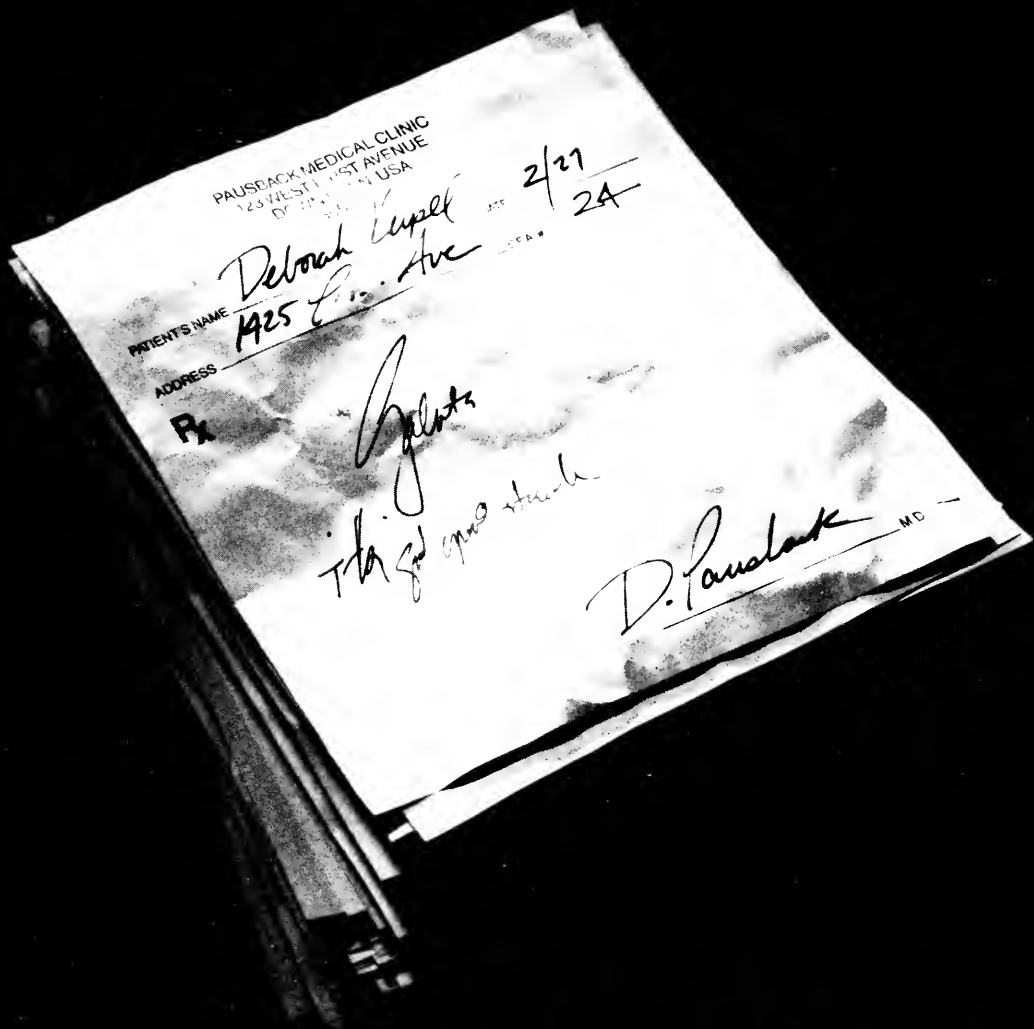
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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.



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PRESIDENT'S REMARKS: I'LL BE FRANK

Beginning with this issue, "I'll Be Frank" will bring you commentary from the new NCPHA president, J. Frank Burton. The following remarks were presented by President Burton at the Awards and Installation Luncheon of the 110th Annual Convention of the North Carolina Pharmaceutical Association, May 26, 1990.

As I began to make some notes for today, I found myself listing the usual collection of problems and challenges that our profession, and therefore our Association, are facing as I begin my year as NCPHA president. And it occurred to me that most of my audience today would already know my list by heart! Yes, mail order pharmacy was, of course, on my list; and physician dispensing for profit; and let's not forget discriminatory and multi-tiered pricing or HCFA's confiscation of earned discounts. Nor do we want to omit reimbursement for nonproduct-related services or the issue of only a six-year Pharm.D. versus the five-year B.S. degree. And what about the definition of pharmacy and the need for pharmacy to have a mission statement? Sound familiar? Have we heard these somewhere before?

The real problem, the real challenge for those of us gathered here for this 110th Annual Convention of the North Carolina Pharmaceutical Association is how to get our colleagues, that are not here, involved in these battles! Those of us that are active in state and national pharmacy associations spend a great deal of time "preaching to the choir", just as I was about to do as I sat down to write your basic "Pharmacy's Challenges" speech!

The NCPHA is one of the larger state associations in the country. Our 2,600 plus members represents approximately half of the pharmacists practicing in N.C. By association standards, the percentage of pharmacists in our state who are members of NCPHA is very high. But *our* standards need to be higher! If we do not get more pharmacists to take an active role in the issues facing our profession, we will continue to see more and more of the decisions affecting pharmacy made by outside inter-

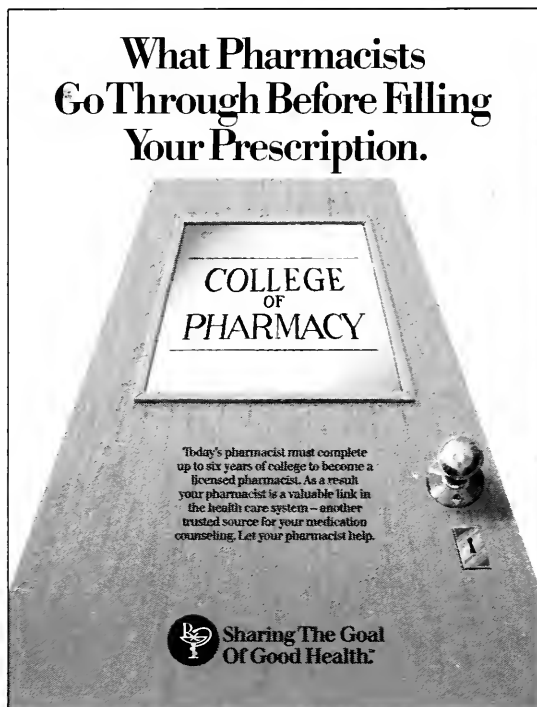
ests, such as government and third party payers! And this will be no easy task! It has been a problem for my predecessors, and it will be a problem for my successors, but we cannot let up! We must start by reaching people at the local and county association level, then encourage cajole and persuade them of the importance of joining and being active in the one organization that has the best chance to influence how pharmacy is practiced in North Carolina—their state pharmacy association! Our work is cut out for us. In my own Guilford County, for example, only 129 out of 313 pharmacists were members of NCPHA as of February 1st! In Mecklenburg County, only 157 out of 425! In Wake County, only 228 out of 512! Right here in Durham County, only 106 out of 267! Each of us must become "Ambassadors-At-Large" for NCPHA. We must not only encourage non-members to join us, but also non-active members to get active!

We should all know by now because N.C. PharmPAC and our own committee on state legislation has told us repeatedly, that you cannot influence the legislative process until you become a participant in it! We have done a poor job of convincing most of our colleagues back home that if they are unhappy with something that affects their pharmacy practice, they must do more than just complain about how pharmacy is getting "another raw deal"! We must reach all areas of pharmacy practice—hospital, chain, and independent, industry and sales, and both management and staff—with the realization that we are all in this together! Until the entire profession works together towards setting our common goals, and deciding how to arrive at those goals, we have very little chance of achieving the potential that I believe is out there waiting for us!

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PAPPA LEGISLATION, FOCUS OF NARD CONFERENCE ON NATIONAL LEGISLATION AND PUBLIC AFFAIRS

The National Association of Retail Drug-gists (NARD) held its 22nd Annual Conference on National Legislation and Public Affairs in Washington, D.C., May 6-8, 1990. Since NCPHA is an affiliate organization of NARD, representatives from the NCPHA membership attended the conference to learn about the current state of national legislative issues facing retail pharmacists.

Senate Bill 2605, the Pharmaceutical Access and Prudent Purchasing Act (PAPPA), dominated the conference agenda. The issues surrounding the bill were drug price inflation, discriminatory pricing practices, and cost control strategies for high priced drugs. Conference participants had an opportunity to discuss these issues with leading Congressmen and their staff who were invited to speak at the conference.

The list of Congressional speakers included: Senator David Pryor (D-Ark), chairman of the Senate Special Committee on Aging and sponsor of PAPPA; Senator George Mitchell (D-Maine), Senate Majority Leader; Rep. Fortney (Pete) Stark (D-Calif.), chairman, Health Subcommittee of the House Ways and Means Committee; Sen. Larry Pressler (R-S. Dak.), member of the Senate Aging and Small Business Committees; and Sen. Herbert Kohl (D-Wis.), member of the Senate Aging Committee.

On the final day, conference participants visited Capitol Hill to meet with Congressmen from their home state. Fact sheets and a video on how to effectively lobby your Congressman, an earlier feature on the conference agenda, prepared participants on how to discuss their positions more intelligibly with their Congressmen. The North Carolina contingency visited all thirteen of their U.S. Congressmen.

A reception, hosted by NARD for all members of the U.S. Congress, capped off the three-day event.

NCPHA representatives who attended the

conference were Jesse Pike of Concord, a past president of NARD, Al Lockamy of Raleigh, Kevin Almond of Sanford, and Kathryn Jefferson of Raleigh.

WHY THE PAPPA?

The problem. State Medicaid programs are under tremendous financial pressure as a result of drug price inflation. (See "A Profile of Prescription Drug Prices" on the next page.) During the 1980's, prescription drug price increases tripled the general inflation rate. As a result, by 1988, Medicaid paid \$3.3 billion for prescription drugs, making it the third highest category of Medicaid spending—ahead of physician payments. Price inflation—not increased use by the poor—accounts for virtually all of the increased spending.

As costs of Medicaid prescription drug programs have increased at faster rates than almost any other State-covered service, States have forestalled immediate budget crises and, at worst, weakened the program by reducing access to needed medications. Examples include raising coinsurance paid by recipients for each prescription, limiting (or actually reducing) reimbursement to pharmacists for their services, and excluding whole therapeutic categories of drugs from Medicaid coverage. Such desperate actions, which can actually increase spending by compromising the health of the poorest Americans who rely on Medicaid, represent the current direction of U.S. public health policy in response to rising drug prices.

State Medicaid recipients, pharmacists, and other providers would benefit from similar discounts or a similar negotiating process provided to hospitals, HMOs, and the Department of Veterans Affairs—although pharmaceutical manufacturers have refused to do so.

A PROFILE OF PRESCRIPTION DRUG PRICES*

- Prescription drug prices more than tripled the general inflation rate in the last decade.
- From 1981 through 1988, prescription drug prices rose by 88% while general price inflation rose only 28%.
- The price of a brand name drug product in a European country is, on average, one-third less than the U.S. price.
- U.S. pharmaceutical manufacturers contend that they need high profits to fund research and development efforts. In the past, Congress has agreed, providing billions of dollars in tax breaks to the pharmaceutical industry and additional billions in excessively high prices through Medicaid, the health insurance program for the poorest Americans.
- Sixty percent of the new molecular entities brought to market by the 25 largest U.S. drug manufacturers between 1981 and 1988 were evaluated by the federal Food and Drug Administration (FDA) as "C"-rated, the so-called "me-too" drugs, having little or no therapeutic advantage over existing drug therapies.
- Congress repealed the Medicare Catastrophic Coverage Act, and the outpatient drug program, largely because of the fear of out-of-control costs. (Drug costs represent the highest out-of-pocket cost for three of four older Americans.)
- By 1988, Medicaid paid \$3.3 billion for prescription drugs, more than for physician payments, making it the third highest category of Medicaid spending.
- HCFA has put increasing pressure on state Medicaid agencies to decrease drug product reimbursement to pharmacists. These pressures could force pharmacists to drop out of the Medicaid program, creating access problems for beneficiaries—particularly rural areas.
- Physicians and pharmacists in over 90% of the nation's hospitals and at least 42% of U.S. health maintenance organizations (HMO's) have independently concluded that many prescription drugs are therapeutically interchangeable when used to treat patients suffering from the same ailment.
- Using this information, hospitals and HMOs have employed limited lists of preferred drugs (formularies) and group purchasing to successfully negotiate prices with drug manufacturers that have yielded discounts in excess of 40% off the published wholesale prices.
- The Department of Veterans Affairs (DVA) obtains an average discount of 41% off the manufacturer's published "Average Wholesale Price" (AWP) for single source drugs and an average of 60% off the AWP for multiple source drugs. In contrast, Medicaid programs, in almost all cases, pay top dollar (or at best, AWP minus 10%) for drug products.

*Provided by NARD.

OBJECTIVES OF THE PHARMACEUTICAL PRODUCT ACCESS AND PRUDENT PURCHASING ACT OF 1990 (PAPPA)

The PAPPA is designed to:

- 1) focus on cost-saving efforts on the cause of increased program outlays—manufacturer's escalating drug prices—rather than on the retail pharmacist and the poor, who cannot control drug prices;
- 2) create an opportunity for States to establish money-saving Medicaid drug price negotiating programs of their own design;
- 3) preserve successful marketplace mechanisms for enhancing drug price competition, by building on time-honored business practices already in widespread use in the market (by the VA, hospitals, and managed care providers);
- 4) restore and enhance access to medically necessary pharmaceuticals for the poor who rely on Medicaid; and
- 5) preserve the physician's prerogative to prescribe medically necessary medications for individuals in their care.

Contact NCPHA at 800-852-7343 or 919-967-2237 to obtain a copy of the bill.

Despite the fact that Medicaid purchases over 10% of the prescription drugs in the U.S., drug manufacturers have almost without exception refused to directly negotiate better prices with state Medicaid outpatient prescription programs.

In late April, following Federal and State threats of legislative intervention, Merck, Sharp and Dohme (MSD) proposed to give state Medicaid programs their lowest price for MSD drugs if the State would agree to list all of the firm's drugs on the state formulary (if it had one). This is significant because MSD has broken away from the rest of the drug manufacturing industry and, in doing so, has acknowledged the unacceptability of the financial crisis facing state Medicaid programs.

MSD's proposal, however, is likely to have little effect on the remainder of the industry. Because other drug companies offer much greater discounts than MSD, it is extremely unlikely that many companies will (voluntarily) follow suit. Pressure from Congress, in the form of price negotiation legislation,

offers the surest prospect of industry-wide price reductions.

The answer—Senator Pryor's S.2605, PAPPA. (See "Objectives of PAPPA" above.) At the time this journal went to press, PAPPA had been introduced to the Senate and referred to the Finance Committee for evaluation. Nine to twelve senators have added their names as cosponsors of PAPPA, S.2605, including Senate Majority Leader, Senator George Mitchell. Neither of our North Carolina senators have committed themselves as a cosponsor. **You are encouraged to contact our U.S. senators and urge them to show their support for S.2605 through their co-sponsorship.**

Their addresses are:

The Honorable Jesse A. Helms
403 Senate Dirksen Office Building
Washington, D.C. 20510-3301

The Honorable Terry Sanford
716 Senate Hart Office Building
Washington, D.C. 20510-3304 •

WELCOME, NEW MEMBERS!

The following persons have become new members of NCPhA since the publication of our last journal issue. They have joined more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Eugene Roberson, *Carrboro*
Cynthia Robinson, *Shallotte*
Greg C. Deese, *Charlotte*
Jules Resnick, *Plantation FL*
Thomas J. Holmes, *Buies Creek*
Alyce C. Holmes, *Buies Creek*
Cynthia G. Smith, *Kernersville*
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Tammy Bordeaux, *Malpass*
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FROM THE MAILBAG

May 21, 1990

The Honorable David Pryor
Chairman, Special Committee on Aging
G-41 Dirksen Senate Building
Washington, D.C. 20510

Dear Mr. Chairman:

The Board of Trustees of the American Pharmaceutical Association (APhA), by motion on May 16, officially endorsed your bill, S.2605, the Pharmaceutical Access and Prudent Purchasing Act of 1990. Our board's action in support of S.2605, just six days after its introduction, is coupled with our commitment to work vigorously for enactment of this important legislative proposal.

APhA believes this legislation will lead to enhanced pharmacy services for patients and improved access by state Medicaid agencies to pharmaceutical products. As Congress considers your proposal, we are confident that its deliberations will raise awareness of prescription drug manufacturer multi-tier pricing practices that discriminate against the indigent, against community pharmacists, and against all taxpayers who fund Medicaid.

We commend you and your staff for your research into the complex area of pharmaceutical pricing practices in developing this legislation. The incisive study and investigation into this area enhances the prospects for enactment of the bill.

APhA, the national professional society of pharmacists, represents the third largest health profession, comprising more than 150,000 pharmacy practitioners, pharmaceutical scientists and pharmacy students.

Sincerely,

John A. Gans, Pharm.D.
Executive Vice-President



John A. Gans, Pharm.D., executive vice-president, APhA (left), with J. Frank Burton, president, NCPHA, and Ralph H. Ashworth, immediate past president, NCPHA (center), during the 24th Annual Seminar on Socio-Economic Aspects of Pharmacy Practice held in High Point, March 22, 1990. The seminar was co-sponsored by NCPHA and the UNC School of Pharmacy.



Seminar moderator, Jean Paul Gagnon, Ph.D., Director of Industry Relations, Marion Merrell Dow Inc., with speaker, Bill G. Felkey, M.S., Director of Industrial Design, School of Pharmacy, Auburn University.

DICKINSON'S PHARMACY

by Jim Dickinson

You can end discriminatory pricing.

The power of activated pharmacists can be awesome. As one Congressman told a group of pharmacists from this year's annual NARD Legislative Conference: "Hey, guys, I know why you're here and I'm already on board!"

He was referring to the one-track mind of every pharmacist visiting Capitol Hill this spring — S. 2605, or Senator David Pryor's Pharmaceutical Access and Prudent Purchasing Act (PAPPA).

With the support of pharmacists, this bill can effectively outlaw discriminatory pricing by manufacturers, and in so doing, end the drift of managed care programs to mail-order plans.

PAPPA would reverse the current bias in Medicaid that crudely extracts cost containment savings only from retail pharmacies while leaving manufacturers untouched.

Instead, it would have Medicaid pay pharmacies their actual charges (at the 90th percentile) — without discounts, MACs or EACs. It would shift cost-containment to manufacturers, forcing them into price negotiations with individual state Medicaid programs.

Pryor's staff on the Senate Special Aging Committee told the NARD Legislative Conference that the impetus for these individual negotiations would be their bill's "or else" clause — the establishment of a federal pharmacy and therapeutics committee.

Like existing P&T committees in hospitals, this one would identify groups of therapeutically equivalent drug products for the states and private programs to use in their exclusive contracting with individual firms, brand and generic alike.

"This is what the manufacturers fear most," staffer David Schulke told NARD. It is the harbinger of universal one-price policies.

And fear is what the Pharmaceutical Manufacturers Association is exhibiting. Even before the first of the pharmacy delegations began their visits on Capitol Hill,

PMA had already been into every office several times, lambasting the Pryor bill and its sponsor personally.

As the pharmacists found, however, PMA's tactics might not have been too smart. The aggressiveness of its premature opposition actually caused many lawmakers to tilt on reflex toward Pryor and pharmacy.

As examples of PMA's propaganda against S.2605, a May 10 package of arguments claimed that the bill could require "tens of millions of telephone calls annually" by pharmacists to physicians, to get permission to make substitutions among "preferred" and non-preferred drugs set by the new national P&T committee.

That's premature nonsense, according to Schulke — unless industry can scare most physicians into writing for non-preferred drugs, those phone calls will likely be uncommon.

Likewise, PMA claimed that the national P&T committee could group eight beta blockers (acebutolol, atenolol, labetalol, metoprolol, nadolol, pindolol, propranolol and timolol) as therapeutic equivalents, when clearly it would have to be incompetent to do so.

The effects of the new reimbursement scheme on manufacturer profits and R&D is similarly being misrepresented, Schulke said.

This feature is presented on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting open discussion of professional issues in pharmacy. The Independent Voice, an 8-page practical monthly newsletter, is available from Ferdic Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in the following commentary as they are those of the author and not necessarily those of NCPHA.

Instead of quitting research, companies would be pressed by the new Medicaid purchasing system to shift R&D from me-too drugs in comfortably lucrative market niches (which the bill would make least-profitable) to the truly innovative, major new therapy breakthroughs.

No wonder manufacturers don't like S.2605. It's not comfortable, and it introduces new competitive stresses to their world; the weaker ones may go under, or merge (as many have already done).

But, in the same ethic as that which the manufacturers have been content to watch ravage the retail pharmacy marketplace for two decades, the strong will emerge all the stronger.

It is the industry's turn to bite the bullet (and not, as a PMA paper protested, simply by suffering the attrition of market share that the predictable maturation of patents inevitably causes).

It is pharmacy's turn to grow again, and to prosper in the marketplace.

Pharmacy has a lot of friends in this coming battle for its recovery, including even a few of the best PMA firms, like Merck, which has already announced a lowest-price plan for state Medicaid agencies, and others that plan to follow Merck's lead soon.

In addition, the Pryor bill, at our press time, was supported by a rapidly swelling list of powerful allies, including: the American Association of Retired Persons, and a host of other seniors organizations, as well as Senators Brock Adams (D-WA), Dale Bumpers (D-AR), John Breaux (D-LA), Quentin Burdick (D-ND), Kent Conrad (D-ND), James Exon (D-NB), Robert Kerrey (D-NB), Herb Kohl (D-WI) and majority leader George Mitchell (D-ME)

Obviously, there's a long way yet to go. Industry has money to fight with, but there are many more people on pharmacy's side than on industry's. Remember that when company reps bring up this subject!

S.2605 is pharmacy's big shot at a "level playing field." Pharmacy can and will do it—if you do! **Write your senators today.** •


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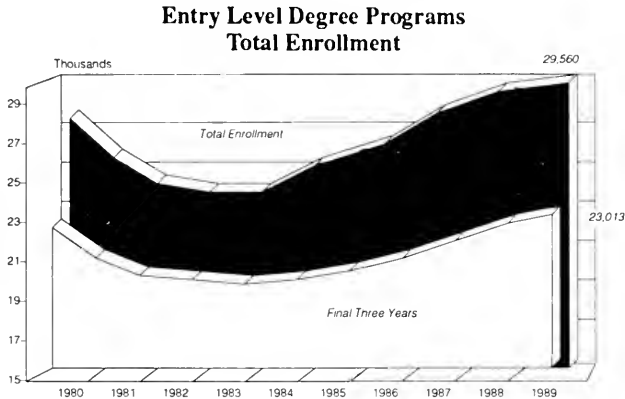
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¹ FDA survey, "Patient Receipt of Rx Drug Information", 1983
² A Study of Attitudes, Concerns, and Information Needs for Rx Drugs: and Related Illnesses, CBS Television Network Consumer Model Survey, 1983

AACP REPORT INDICATES SLOW GROWTH IN PHARMACY ENROLLMENTS



Preliminary data from the American Association of Colleges of Pharmacy's (AACCP's) 1989-90 enrollment survey released in May indicate a record 29,560 individuals are pursuing an entry level pharmacy degree at the nation's 74 colleges and schools of pharmacy.* While this is an increase of 2.3 percent over 1988-89 enrollments, the entering class increased by only 0.6 percent, compared with 3.4 percent the previous year. This may indicate that schools are reaching their maximum enrollments.

Women continue to compose the majority of pharmacy's student body, reaching 61.6 percent in 1989-90. Minority enrollments decreased by one tenth of a percent to 10.4 percent of total enrollments. Black

Americans in pharmacy programs increased 0.2 percent to 6.7 percent; Asian American enrollments in the 1989-90 class increased 0.9 percent to 9.1 percent.

The report also indicated that traditional-age student enrollment, i.e., 18-24 years, remains stable, despite the decline in this population age group. Students 25 and older are registering the largest gains in all college enrollments, 11 percent over 1988-89. Data from the most recent first year classes indicate a similar trend in pharmacy, though the percentages are not running as high.

** A synopsis of the preliminary report originally appeared in AACP News, Vol. 21, No. 5, May 1990.*



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Brief Summary. Consult the package literature for complete information.

Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chlordiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

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- **Heals duodenal ulcer rapidly and effectively^{4,5}**
- **Dosage for adults with active duodenal ulcer is 300 mg
once nightly (150 mg b.i.d. is also available)**

References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20:710-713.
3. *Data on file*, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
5. *Am J Gastroenterol* 1989;84:769-774.

well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported. **Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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Additional information available to the profession on request.



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BOB GORDON RECEIVES AWARDS



Bob Gordon, Director of the Food and Drug Protection Division of the N.C. Department of Agriculture, shares his Employee of the Year award with his family.

Robert L. Gordon, Director of the Food and Drug Protection Division of the North Carolina Department of Agriculture was recognized as the 1989 Employee of the Year at a luncheon held at Balentine's Restaurant in Raleigh. The award was presented by Gordon's longtime boss, Commissioner of Agriculture James A. Graham. Gordon was appointed Director in 1985 and has been with the department since 1974.

As director, Gordon is responsible for the protection of the health, welfare and safety of the users of food, drugs, medical devices, cosmetics, commercial animal feeds, pet food and pesticides in North Carolina. Under Gordon's direction, the more than 175 employees of the Division ensure the users of these products get what they are supposed to. Gordon has handled many emergency situations, ordering recalls on contaminated food and drugs, potentially sav-

ing lives. Among the products involved were Tylenol, watermelons, contaminated cheeses, defective salmon, ice cream and EDB-contaminated food.

At the National Association of State Departments of Agriculture in Atlantic City, Gordon received the NASDA Honor Award for Service for his handling of emergency situations involving food.

Gordon is a native of Yadkin County and graduated with a B.S. in Pharmacy from the UNC School of Pharmacy in 1961. He served two years in the US Army and operated a pharmacy in Cary until 1974. •

SEARLE'S PATIENT PLUS PROGRAM

Cheers for Searle on the introduction of their "Patient Plus" Program, designed to allow patients to receive medication for up to six months at no charge. The introductory program is timed to correspond with the release of Searle's Kerlone (betaloxol HCl).

The feature of the program of most interest to pharmacy is the reimbursement rate, which is *usual and customary* for each individual store. Pharmacists fill out a simple form and send it to the indicated address and will be reimbursed their usual charge for this medicine. The Patient Plus Certificate # 1 is good for 60 days of free therapy and must be presented by the patient by November 1, 1990. Patient Plus Certificate # 2 is good for 90 days free therapy and must be presented to the pharmacist by January 31, 1991. Patients must be enrolled between May 15, 1990 and August 31, 1990. For more information, contact your Searle representative. •



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CORRESPONDENCE COURSE

COUNSELING CONSUMERS ON OTC ASPIRIN PRODUCT USE PART I: ACTIONS AND USES

J. Richard Wuest, R.Ph., Pharm.D.
Professor of Clinical Pharmacy
University of Cincinnati
Cincinnati, Ohio

Thomas A. Gossel, R.Ph., Ph.D.
Professor of Pharmacology
and Toxicology
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Goals

The goals of this lesson are to:

1. describe the pharmacology, toxicology, and therapeutic uses for aspirin and other salicylates; and
2. discuss specific patient information on methods to maximize efficacy and minimize the chance for adverse effects.

Objectives

At the conclusion of this lesson, pharmacists should be able to:

1. demonstrate an understanding of the pharmacologic and toxicologic mechanisms of action of aspirin and other salicylates
2. identify specific therapeutic uses, indications, and restrictions for self-medication with salicylates;
3. select specific warnings and precautions associated with salicylate therapy; and
4. choose from a list, specific points for advising consumers on the correct use of these drugs.

Aspirin is also one of the most widely used drugs in the U.S. Approximately 19 billion dosage units are taken annually.

Aspirin is also one of the most intensely studied drugs in the world. In view of the large number of studies, extensive use, and long marketing history of aspirin, it is relatively safe, with a low incidence of serious toxicity when taken as directed.

However, this does not imply that aspirin is free of adverse effects. Important ones include toxicity to organ systems (i.e., the GI tract, central nervous system, kidney, liver, and blood), and hypersensitivity reactions in susceptible individuals. Aspirin can also affect the fetus during pregnancy, is implicated in a number of drug interactions, and linked to some other serious reactions. A full review of the toxicity and drug interactions associated with aspirin will be presented in Part II of this series.

Pharmacology of Aspirin

Aspirin is absorbed by passive diffusion. Thus, non-dissociated (unionized) molecules pass through the membranes of cells lining the intestine. When gastric acidity is increased, the drug is less ionized and its rate of absorption is enhanced. A rise in pH increases its water solubility, but decreases absorption. However, it is difficult to prove that gastric pH changes have a significant therapeutic impact on aspirin in all persons.

After it is absorbed, aspirin is rapidly hydrolyzed by enzymes to its active moiety, salicylic acid. This primarily occurs within the liver, but also takes place within cells of the GI tract and erythrocytes. Some of the salicylic acid will be further metabolized. The remainder will be excreted unchanged in the urine.

Mechanism of Action. Aspirin and other salicylates (Table 1) alleviate pain mainly by a peripheral action which blocks impulse generation of pain fibers coming into the brain. The drugs do not appear to have the same type of central activity as do the narcotics.

There is also evidence that some pain relief provided by salicylates is due to decreased inflammation. This removes it as a source of stimulation of pain receptors. The fever reduction action is due to activity within the hypothalamus.

Despite its long history of use, the actual pharmacologic mechanism of action for aspirin has only recently come to light. The current theory is that salicylates interfere with prostaglandin synthesis.

Prostaglandins are produced in response to trauma and other noxious stimuli. As they relate to this topic, prostaglandins are involved in inflammation, smooth muscle contraction, and the febrile response. Drugs that reduce prostaglandin levels are therefore used to treat inflammation, pain, fever, and dysmenorrhea.

Figure 1 illustrates the suggested mechanism of action for salicylates. Of interest is the enzyme cyclo-oxygenase, which metabolizes arachidonic acid to its endoperoxide intermediate products. These are normally converted to thromboxanes, prostacyclins, and prostaglandins. Thromboxanes and prostacyclins both regulate platelet aggregation.

Endoperoxides also contribute to this action. Various products in the arachidonic acid metabolic pathway react with endogenous serotonin, bradykinin, and histamine to potentiate pain, redness, inflammation, and subcutaneous edema. The exact relationship between these biochemical influences remains unknown, but they are all implicated in the production of pain.

Prostaglandins induce pain partially by causing inflammation and partially by sensitizing nerve endings to the actions of bradyki-

Table 1.
**Safe and Effective Analgesic/
Antipyretic Salicylate Drug Products**

Aspirin
Calcium Carbaspirin
Choline Salicylate
Magnesium Salicylate
Sodium Salicylate
Salicylamide

nin, histamine, and possibly other mediators of pain. Prostaglandin-induced pain is long lasting and accompanied by skin tenderness and enhanced sensitivity to touch.

Salicylates lower elevated body temperature but will not reduce it lower than normal. Body temperature regulation is controlled to large extent by the hypothalamus. During fever, balance between heat reduction and loss continues to be regulated by the hypothalamus, but the body temperature is set at a higher than normal level. Antipyretics are believed to act by resetting the "thermostat" so that temperature decreases toward normal. Heat production is not altered, but heat loss is increased by augmenting peripheral blood flow sweating.

Product Formulations

Materials and methods used in manufacturing solid forms (tablets, capsules, etc.) of many drugs, including salicylates, can affect onset of action, duration, and intensity of pharmacologic activity. Several processes govern the ultimate effectiveness of an ingredient from the time it is swallowed until its pharmacologic effects (relief of minor aches and pains, in this case) become evident. For example, the dissolution of solid dosage forms into granular aggregates in the fluids of the stomach or intestine is extremely important.

Another critical factor is the rate and extent of dissolution. This involves further transfer of drug from the fine solid particles of the tablet or capsule into a dispersion of molecules or ions in aqueous solution. The

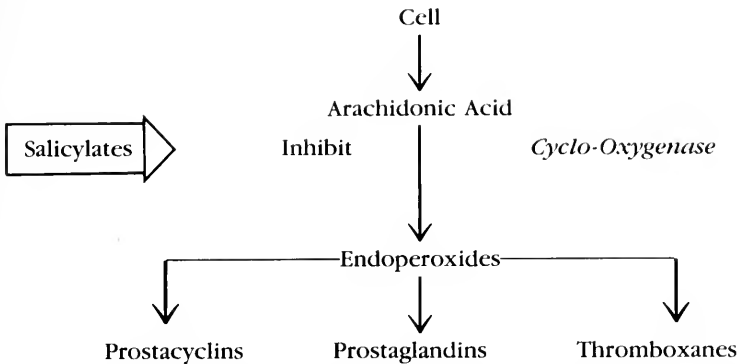


Figure 1. Suggested mechanism of action of salicylates.

dissolution rate of a dosage form determines its overall rate of absorption into the systemic circulation and, consequently, distribution to the desired site of action.

The finished solid dosage form directly affects the dissolution rate with subsequent bioavailability of the product's ingredients. Though there is a correlation between differing aspirin product formulations and drug levels achieved in the blood, the relationship of blood levels to the degree and onset of pharmacologic activity (e.g., pain relief) is not understood. Needless to say, a minimal (threshold) level of drug in the blood is required to produce analgesia. However, for most analgesics, because of the insensitivity of current methodology in measuring pain relief, relating analgesia to blood levels cannot be quantified.

OTC salicylate products are available in several solid dosage forms including tablets, capsules and suppositories. The most common are tablets, i.e., buffered, unbuffered, chewable, enteric coated, microencapsulated, and time-release. Different formulations significantly affect their bioavailability.

The original, and still most popular dosage of aspirin, is the unbuffered, regular tablet. It could be assumed that all products containing unbuffered aspirin are comparable with respect to bioavailability (i.e.,

amount of drug absorbed into the blood in a given period). Unfortunately, this has not been demonstrated in studies where dissolution rates of commercial unbuffered products have been compared. This appears to result from the difference in active ingredients and excipients that various products contain.

Buffered aspirin is the other major OTC tablet dosage form. The purpose of buffering is to increase dissolution to hasten onset of activity and reduce gastric irritation. Buffered aspirin preparations are claimed to reduce gastric distress.

The degree of buffering in most products is insufficient to markedly affect the pH of gastric fluids. It only increases the pH in the area immediately around the dissolving particles. This results in more rapid dissolution and removal from the stomach, and decreased local gastric irritation.

Chewable tablets and gum are convenient for individuals who have difficulty swallowing whole tablets. They are especially popular with children.

Chewable tablets are usually pleasantly flavored and contain 81 mg of aspirin. Chewing gum (i.e., Aspergum) contains 226.5 mg per piece.

Because of the presence of aspirin in the oral mucosa for prolonged periods, chew-

Table 2.
Commercially Available Products that Contain Magnesium Salicylate

Product	Manufacturer	Dosage Strength
<i>OTC</i>		
Doan's Pills	Jeffrey Martin	325 mg tab
Efficin	Adria	500 mg tab
<i>Prescription</i>		
Durasal	Seatrace	480 mg tab
Magan	Adria	545 mg tab
Mobidin	Ascher	600 mg tab
MS-650	Williams	650 mg tab

able tablets and gums should not be used for at least 7 days after tonsillectomy or oral surgery, except when a physician has advised otherwise. Such use may increase the chance of local hemorrhage.

Enteric coated tablets (e.g., Ecotrin) were developed to eliminate local irritation in the stomach. These tablets dissolve in the small intestine rather than the acidic gastric fluids. They require a longer time to deliver medication to the systemic circulation because of their delay in absorption. Therefore, when using such dosage forms, the individual must take this delay into consideration. The use of enteric coated preparations for treating acute symptoms, such as occasional headache, is not as desirable. For treatment of chronic symptoms such as arthritis, these products may be more useful once an adequate blood level is established.

A suppository dosage form is convenient for individuals who are vomiting, unconscious, or experiencing excessive gastric irritation. However, it may take twice the dose rectally to produce the same effect as if taken orally.

Time-release dosage forms (e.g., Measurin, Arthritis Bayer) increase the drug's duration of action. Some authorities question whether these dosage forms are worth the additional cost.

For example, individuals requiring anti-rheumatic doses of aspirin to treat syn-

toms of arthritis may be ill-advised to use long acting preparations. With larger doses of aspirin, metabolism may proceed independently of blood levels, so prolonged action can be achieved by chronic dosing with regular tablets. Taking aspirin in a time-release formulation may increase medication cost while providing no additional therapeutic benefits.

Salicylate Derivatives

When the FDA/OTC Advisory Panel on Internal Analgesics and Antipyretics reviewed commercially available salicylates, it rated the following items as safe and effective (Category I) for self medication.

Calcium carbaspirin is a complex of calcium salicylate and urea. It is a larger molecule than aspirin, so a higher dose (414 mg) is required to produce same pharmacologic effect as 325 mg of aspirin. Although the dissolution rate for calcium carbaspirin is faster than aspirin, the rate of absorption into the blood is similar. It has no proven clinically significant therapeutic advantage over aspirin in most individuals.

Choline salicylate (Arthropan) is a highly soluble form of salicylate that can be administered as a stable, palatable liquid. The advantage of this formulation is that it is the only liquid salicylate preparation currently available OTC. Claims are made that it is absorbed five times faster than aspirin. On the other hand, while choline salicylate

Table 3.
Differences in Label Indications for OTC and
Rx-only Magnesium Salicylate Products

OTC

For the temporary relief of headache, occasional minor aches and pains including muscular backache pain.

Prescription

For the relief of the signs and symptoms of rheumatoid arthritis, osteoarthritis, bursitis and other musculoskeletal disorders.

may be more palatable than an equivalent dose of aspirin, and more rapidly absorbed than aspirin, the analgesic effectiveness of the two drugs has yet to be adequately compared. In spite of claimed advantages, choline salicylate has not become a popular item.

Magnesium Salicylate. While the number of well-controlled studies on the effectiveness of magnesium salicylate are relatively few and mostly unpublished, they nonetheless indicate that it is comparable to aspirin. The claim that magnesium salicylate might be indicated when aspirin cannot be tolerated remains unproven.

There is evidence that magnesium salicylate is as safe as aspirin, although it has similar side effects. Magnesium salicylate is not associated with causing asthmatic attacks in aspirin sensitive persons. Additionally, it, as well as other non-acetylated salicylates, does not affect platelet aggregation. Large doses can cause a hypoprothrombinemic action, however. There is also evidence of gastric mucosal bleeding and irritation similar to that caused by aspirin.

Toxicity to magnesium salicylate is unlikely when taken in recommended dosages of 325 to 650 mg every four hours (not to exceed 3900 mg in 24 hours), unless renal insufficiency is present. The magnesium contained in the product is rapidly excreted in most persons. Hypermagnesemia is therefore difficult to achieve by the oral route, when renal function is normal. However, when renal dysfunction is present, magne-

sium toxicity can occur. Therefore, a warning on the label of OTC products containing magnesium is required. For magnesium salicylate, as well as other OTC products (e.g., antacids, laxatives), labeling must contain the following warning: "Do not take this product if you have kidney disease, except under the advice and supervision of a physician."

To place this in proper perspective when counseling consumers, magnesium salicylate is not contraindicated in all persons with kidney disease — just those who cannot adequately excrete magnesium ions. The thrust behind the label warning is that individuals should check with a physician before choosing to take the drug.

Magnesium salicylate-containing products are sold both OTC and by prescription (Table 2). The major reason is linked to promotion of the products by the manufacturers. In the U.S., a manufacturer may sell an analgesic product containing a salicylate (or ibuprofen) in certain dosage strengths for the "temporary relief of mild pain." If the manufacturer chooses to promote the product for treating rheumatoid arthritis, which is neither self-diagnosable nor self-treatable, it can only be sold by prescription. The difference in these indications (for magnesium salicylate) are shown in Table 3.

Sodium salicylate had been used for a quarter century before aspirin was introduced into medicine in 1899. Ironically, when aspirin was introduced, it was touted as

more palatable and producing less gastrointestinal disturbance than sodium salicylate. While it has been demonstrated that aspirin hydrolyzes to salicylic acid, and it is suggested that the latter is actually the active chemical, the analgesic effect of aspirin is now recognized as being superior to an equimolar dose of sodium salicylate. Sodium salicylate is as safe as aspirin. Unlike aspirin, it has not been associated with reactions causing asthmatic attacks. Additionally, sodium salicylate does not affect platelet aggregation. Like other salicylates in large doses, it does have a hypoprothrombinemic effect.

While there is concern relating to the quantity of sodium in drug products and its role in the development or worsening of hypertension, most studies have shown that in the absence of endocrine or kidney disturbances, the effect of sodium on blood pressure can be moderate. This is rarely clinically significant. Persons with heart failure or renal disease, who have a high sodium intake, may develop edema, leading to a significant rise in blood pressure.

The recommended maximum daily dosage of sodium salicylate is 4 gm. This quantity contains 25 mEq of sodium, which is sufficiently high to warrant a warning on the labeling of such products, which states: "Do not take this product if you are on a sodium-restricted diet, except under the advice and supervision of a physician." It would therefore be prudent for individuals who are on such a diet to use a different form of salicylate.

Salicylamide is used primarily in OTC analgesic combination products and cold preparations. The amount per dosage unit ranges from 97 to 400 mg. Salicylamide is not a true salicylate derivative. Instead, it is the amide congener of salicylic acid. It does not possess the chemical properties of salicylates and is not hydrolyzed to salicylic acid.

The FDA/OTC advisory panel that reviewed salicylamide concluded that salicyl-

amide must be studied further to prove its safety and effectiveness. FDA has since notified manufacturers of salicylamide-containing products that there is adequate evidence to prove that salicylamide is not an effective OTC analgesic.

Consumer Advice

Since aspirin can upset the stomach in some individuals, it has been recommended that each dose be taken with a full glass of water. However, there is a lack of controlled studies to support the contention that the quantity of water has any effect relative to safety or efficacy. On the other hand, water could be effective in facilitating dissolution. This would reduce localized stomach mucosal irritation from aspirin particles. For individuals who are susceptible to gastric irritation, the advice might be sound. However, the greatest amount of gastric ulceration due to aspirin and other NSAIDs is due to their systemic effects on prostaglandins rather than local activity.

Persons who might experience problems in taking aspirin include: asthmatics, diabetics, those with gout or peptic ulcer disease, and patients taking anticoagulants or methotrexate. These individuals should check with their physician before self-medicating with aspirin. While it is not contraindicated and most of these patients are not significantly affected by aspirin, it is still best to check with their physician in case they might experience difficulties.

Very few people are allergic to aspirin. However, asthmatics are much more likely to experience hypersensitivity reactions when taking aspirin. Also, there is cross-sensitivity with other NSAIDs.

For diabetics, salicylates can exert a significant effect on carbohydrate metabolism and cause hypoglycemia. An occasional dose does not appear to cause problems, but moderate to high doses could interfere with diabetic control. In patients taking the older sulfonylurea derivatives, salicylates, may displace them from their plasma protein binding sites and/or interfere with their

excretion. The newer sulfonylureas (Dia-Beta, Glucotrol, Micronase) do not appear to significantly bind with serum protein and are not linked to this interaction.

For patients with peptic ulcer disease, the GI irritation and increased bleeding seen with salicylates could cause problems, possibly major.

Aspirin may aggravate gout in patients who are taking probenecid (Benemid) or sulfinpyrazone (Anturane). Salicylates can antagonize the capability of probenecid and sulfinpyrazone to increase excretion of uric acid, and thus inhibit their effects.

Aspirin (in high doses — 3 or more gm daily), but not the non-acetylated salicylates, has been shown to potentiate oral anticoagulants by several mechanisms, including an additive inhibition of the formation of prothrombin. Aspirin, in any dose, can interfere, with blood clot formation and also cause GI tract irritation and bleeding.

Salicylates displace methotrexate from its plasma protein binding sites and increase the chance of toxicity of an already highly toxic drug.

In each of the above cases, neither acetaminophen nor ibuprofen has demonstrated the same problems or interactions. They may be better alternatives to aspirin for relieving pain or fever in patients taking methotrexate.

This discussion of aspirin and other salicylates will be continued in Part II of this series. In that lesson, adverse effects and toxicity are presented. •

CORRESPONDENCE COURSE QUIZ

OTC Aspirin, Part I

- Which of the following is a true statement?
 - An increased gastric pH decreases the water solubility and decreases the absorption of aspirin.
 - If gastric acidity increases, the rate of absorption of aspirin decreases.
 - When gastric acidity increases, aspirin is more ionized.
 - It is difficult to prove that changes in gastric pH have significant therapeutic effects on aspirin in all patients.
- Products in the arachidonic acid metabolic pathway react with all of the following endogenously-produced substances EXCEPT:
 - angiotensin.
 - bradykinin.
 - histamine.
 - serotonin.
- Patients with kidney disease should check with their physician before taking which of the following salicylates to self-medicate minor pain?
 - Choline salicylate
 - Magnesium salicylate
 - Sodium salicylate
 - Salicylamide
- The pharmacologically active moiety of aspirin is:
 - acetaminophen.
 - salicylamide.
 - salicylic acid.
 - sodium salicylate.
- The various methods used in manufacturing commercially available aspirin dosage forms affect, to LEAST extent, its:
 - intensity of pharmacologic activity.
 - duration of action.
 - mechanism of pharmacologic activity.
 - onset of action.



This continuing education for Pharmacy article is provided through a grant from

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6. Aspirin is commercially available in all of the following dosage forms EXCEPT:

- chewable tablets.
- intravenous solutions.
- microencapsulated tablets.
- suppositories.

7. Prostaglandin-induced pain is accompanied by all of the following EXCEPT:

- enhanced sensitivity to touch.
- increased bleeding.
- long lasting pain.
- skin tenderness.

8. Which of the following aspirin derivatives has shown the LEAST evidence of effectiveness?

- Choline salicylate
- Sodium salicylate
- Magnesium salicylate
- Salicylamide

9. The major therapeutic analgesic action of aspirin appears to be mediated:

- centrally, in the cerebral cortex.
- centrally, at the opioid receptors.
- peripherally, at the salicylate receptors.
- peripherally, to block impulses generated to the brain.

10. The fact that aspirin is absorbed by passive diffusion means that:

- its ionized components are more easily absorbed.
- its unionized, undissociated form is more easily absorbed.

Cut out or Reproduce and Mail

CONTINUING PHARMACEUTICAL EDUCATION (CPE)

OTC Aspirin Product Use, Part I

- Attach a mailing label from The Carolina Journal of Pharmacy or print your name and address and mail to: CE Test, NCPHA, P.O. Box 151, Chapel Hill NC 27514.
- Completed answer sheets may be returned on a monthly or less frequent basis for grading.
- This is a member service. Non-member tests will not be graded nor CPE credit hours given.**
- NCPHA will maintain a copy of your completed CPE tests and upon successful completion of each program, will issue a certificate for one (1) hour of Board-approved CPE credit.
- If more than two (2) questions are answered incorrectly, the test is failed. You will be given one (1) opportunity to submit a second answer sheet.

Please circle correct answer

1. a b c d

4. a b c d

7. a b c d

2. a b c d

5. a b c d

8. a b c d

3. a b c d

6. a b c d

9. a b c d

10. a b

Evaluation of material: Excellent Good Fair Poor

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Honors, Awards, Citations

Samuel A. Scudder of Zebulon, former owner of Scudder Pharmacy, Inc., has graduated from the Campbell University School of Law and will be working with the Raleigh law firm of Hafer, Day & Wilson, P.A. upon passing the bar.

William R. "Bill" Adams, president of the N.C. Board of Pharmacy has been named 1990-91 Honorary President of the National Association of Boards of Pharmacy (NABP). Adams is a member of the Advisory Committee on Examinations and served as its chairman in '82, '84, '85, and '89. He is an active member of the NABPLEX Review Committee and the NABPLEX Steering Committee and he has been involved in the development of the NABPLEX.

David R. Work, executive director of the NC Board of Pharmacy, received the 1989 distinguished service award from the NC Society of Hospital Pharmacists. He was recognized for promoting a spirit of cooperation among pharmacy groups in the state.

Timothy E. Poe, pharmacist and manager of drug information at Glaxo Inc., was inducted as president of the NC Society of Hospital Pharmacists at the Society's winter meeting in February.

Dennis Williams, clinical assistant professor at the UNC School of Pharmacy, received the Award for Continuing Excellence in 1989 from the NC Society of Hospital Pharmacists.

Weddings

Lisa A. Pedersen, UNC School of Pharmacy, 1984, and **Curtis C. Cutright** were married on May 7, 1990 in Ocho Rios, Jamaica. Mrs. Cutright works for Eckerd Drugs in Greensboro. The couple resides in Julian, NC.

Cathy Lynn Jenkins and **Anthony Bryant Cameron**, both of Fayetteville were united in marriage on March 10. The bridegroom attended the UNC School of Pharmacy.

Robbin Renee Robertson and **Jerry W. Bryant Jr.**, both of Greensboro, were married on April 21. The bride is a UNC School of Pharmacy graduate and is a pharmacist at Revco. The couple will reside in Greensboro.

Jeanne Cauvel Clyde and **Stephen Allan Clinard**, both of Kill Devil Hills, were married April 21. The bride is a UNC School of Pharmacy graduate and is a pharmacist at Revco. The couple will live in Kill Devil Hills.

Elizabeth Anne Hamilton and **Thomas Mauney Owens**, both of Blacksburg, Va., were recently married in March at the First Presbyterian Church in Whiteville. Both are UNC School of Pharmacy graduate. She is employed with Super Rx of Blacksburg, Va. and he is employed with Super Rx of Christiansburg, Va. The couple will reside in Blacksburg, Va.

Births

Shari and **Hank Stewart** of Pikeville announce the birth of their son, **Kenan Lewis Stewart**, on Friday, April 27, 1990. Hank is a 1975 graduate of the UNC School of Pharmacy. He and his brother, Keith, a 1977 graduate of the UNC School of Pharmacy, own and operate Fremont Pharmacy.

Charles Allen Wilkins and his wife, **Ginger Golding Wilkins**, announce the birth of their son, **Matthew Ryan** on March 5. Charles is a 1984 graduate of the UNC School of Pharmacy and Ginger is a 1982 graduate of the UNC School of Nursing. They reside in Chapel Hill.

Jim and **Virginia Pierce** announce the birth of **Elizabeth Suiter Pierce** on February 6. She weighed 5 lbs, 7 oz. Jim is a 1986 graduate of the UNC School of Pharmacy and is employed by the Eli Lilly Company. Virginia is a 1987 UNC School of Pharmacy graduate and is employed by Revco in Wilmington.

Deaths

Henry Shelton Brown, Goldsboro, died Monday, June 4, 1990 in Goldsboro. A native of Goldsboro, Brown was 78 years old. He owned the Brown Drug Company of Goldsboro for many years and was the father of NCPHA Past President H. Shelton Brown Jr.

Robert Neal Watson, a native of Jonesboro in Lee County, died Monday, June 4, 1990 at the age of 76. Watson was a life member of the NCPHA and operated Lee Drug Store in Jonesboro until he retired. He served on the NC Board of Pharmacy from 1949-1965 and was elected into the NC Academy of Pharmacy in 1958.

F.Y.I.

Betty H. Dennis, president-elect of the NCPHA, was among pharmacy association leaders from 47 states and Puerto Rico who attended the 4th Annual Leadership Training Conference recently held in Kansas City. The two-day conference, sponsored by Marion Merrell Dow Inc., was designed to provide incoming presidents of state pharmacy associations with practical information and instruction in leadership and man-

agement techniques to help them in their upcoming term of office.

Affiliates

Northeastern Carolina Pharmaceutical Society met February 14, 1990 at the Holiday Inn in Williamston with 44 present. During the business session, the members voted to donate \$500 to the NCPHA to help defray repair costs to the Institute of Pharmacy. The society also voted to challenge other local associations in the state to match their donation.

The **Western Carolina Pharmaceutical Association** met April 29 in Asheville with a dinner and lecture on "Arthritis Update NSAID Induced Gastropathy" sponsored by the Searle Company. Steven Mendelsohn, M.D., Clinical Associate Professor, University of North Carolina at Chapel Hill was the guest speaker. Officers for the 1990 term were announced as follows: President Toni Sisk, President Elect George Methvin, Past President Mike Overman, Secretary Francina Rogers, Treasurer Tom Allison, Board Members—Dale Massey, Robert Whatley, Pete Sagonias. Sixty nine pharmacists attended the meeting.

1990 PHARMACY CALENDAR

July 16	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
July 16	Pharmacist Recovery Network Task Force Meeting, Institute of Pharmacy
July 17	Woman's Auxiliary Board Meeting, Institute of Pharmacy
August 3-5	Southeastern Officers' Conference, Hilton Head, S.C.
September 6-9	NCPHA/Campbell University School of Pharmacy 1st Annual Seminar on "Issues in Pharmacy Today", Asheville
September 16	NCPHA/UNC Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination,
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 7-13	NC PHARMACY WEEK
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
October 21-25	NARD Annual Convention, Nashville, Tenn.
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, Nev.

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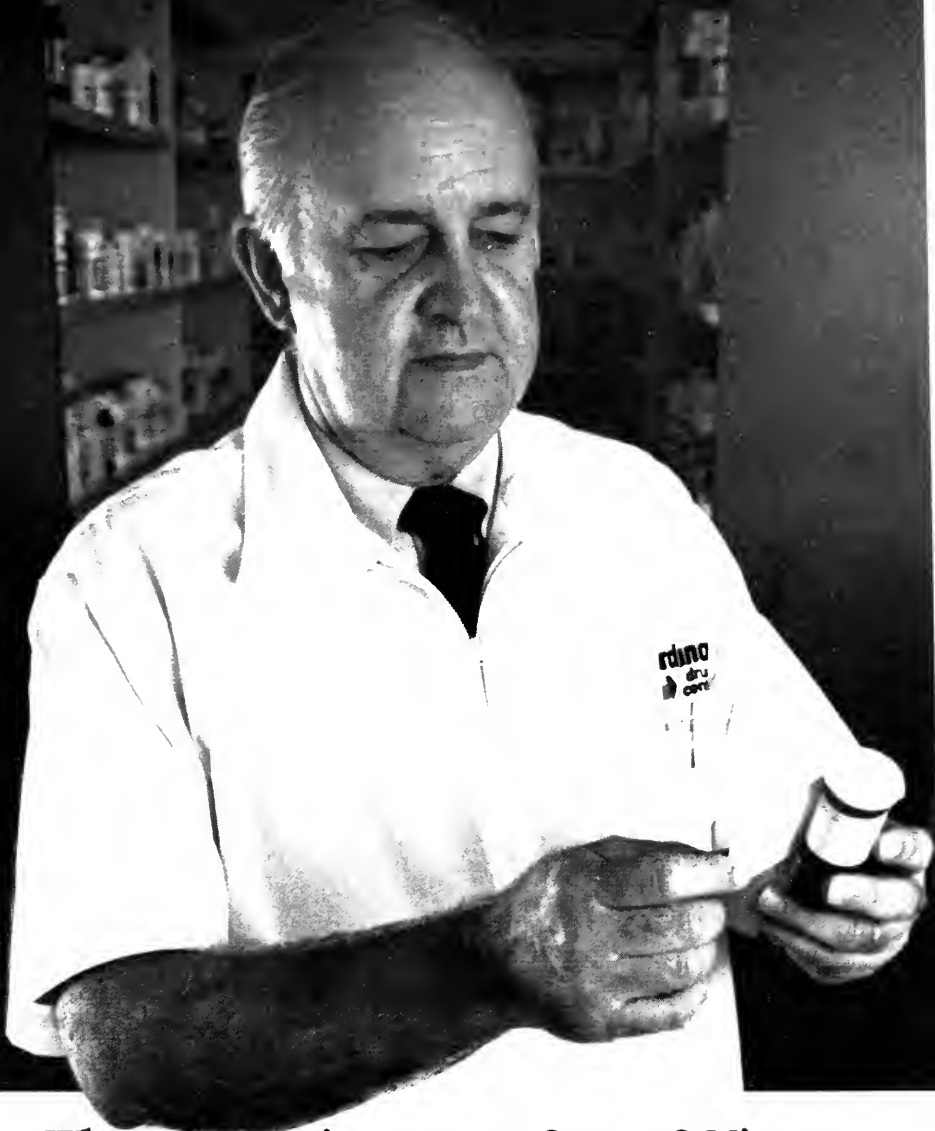
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1990 Award Recipients at the NCPHA Annual Convention, from the left, Lori Tutterow Setzer, Randy Gray Ball, and Virginia Lee "Ginger" Lockamy. See Convention highlights inside. See also the Charter Class of Campbell University School of Pharmacy on page 25 and Pharmacy in the 21st Century on pages 27-29.

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JULY 1990

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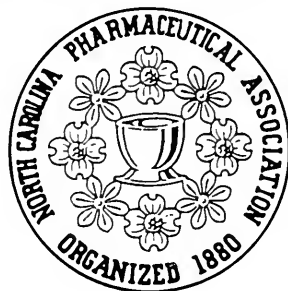
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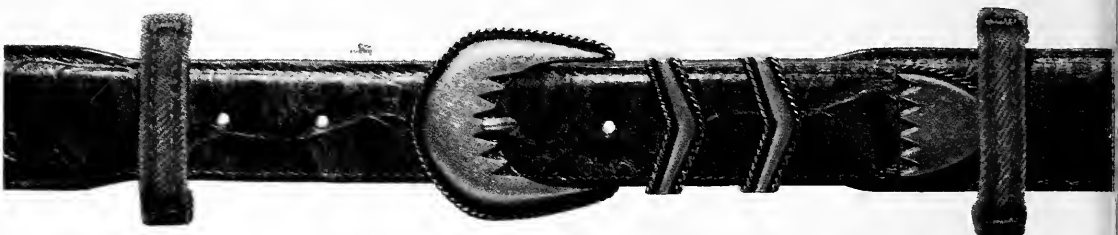
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THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

JULY 1990

VOLUME 70

NUMBER 7

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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.

DID YOU ATTEND THE 1990 NCPHA ANNUAL CONVENTION? If not, you missed...

...an opportunity to network with 500+ professional colleagues, exhibitors, students, and guest speakers.

...15 hours of Continuing Education programs.

...the unveiling of the new "Ask Your Pharmacist About Medicines" poster designed to reach the illiterate population.

...lots of Convention fun—golf and tennis tournaments, dancing to the Band of Oz, a Durham Bulls baseball game, and more...



Ralph H. Ashworth, the 1989-90 NCPHA president receives the E.R. Squibb Presidential Award presented by Mouzetta Zumwalt-Weathers (left). Mrs. Ralph H. Ashworth is also pictured. *Photo by Qualex.*



J. Frank Burton (center), the 1990-91 NCPHA president with his son, Bryan, and wife, Jane, and guest, Phil Gerbino, APhA's 1990-91 president. *Photo by Qualex.*

1990 NCPHA CONVENTION FACTS

Did You Know?

- More than 113 drug products produced via DNA recombinant technology are awaiting FDA approval.
- Significant changes in the NCPHA Constitution and Bylaws were approved by NCPHA members at the Convention.
- Tom Hughes received an award for the longest drive in golf.
- The Woman's Auxiliary raised greater than \$3,768 for NCPHA projects and scholarships through raffle ticket sales and the annual Walk-A-Thon.

PRESIDENT'S ADDRESS

Delivered by Ralph H. Ashworth,
presiding president at the
110th Annual NCPHA Convention,
May 23-26, 1990,
Sheraton Imperial Hotel and Towers

I thank you for the opportunity to serve as your president this past year. I found it most interesting and challenging and I certainly have a better appreciation of the activities of NCPHA. It has been a busy year and, I hope, a fruitful one. Now, I would like to review some of the activities of this year.

NCPHA Building: We appointed a Building and Grounds Task Force chaired by Past President Jack Watts to examine our building on Church Street for needed repairs. We had serious water problems in the basement making it completely unusable, moisture problems throughout the building, a leaking roof, ventilation problems in our attic, etc.

Our good news is that Sparrow Construction of Raleigh has completed these repairs—more work will have to be done in the basement, however, before it can be used, but now it is dry! The bad news is that we had cost overruns because of unforeseen events such as finding a buried oil tank that had to be disposed.

Our expenses were over \$60,000 and Chairman Jack Watts was instructed by the Executive Committee to solicit funds from industry, organizations that use the building, and our members to help defray these expenses. We hope you will respond generously! We have a very valuable and beautiful building and we want to be good stewards.

We thank the Northeastern Carolina Pharmaceutical Society for the \$500 check they have already sent. They have challenged the other local associations to match their donation. We thank you.

Dues: Our Association has been in deficit spending for the last couple of years—our postage alone runs \$25,000 per year. The

last dues increase was five years ago and NCPHA's dues were among the lowest in the country. As of January 1, 1990 our dues went to \$100 a year and we are pleased to report very little resistance. Our membership continues to grow!

We have approximately 2,600 members. As a result of the dues increase we will be able to operate in the black and provide more services and most importantly we created a new and badly needed full-time staff position called Director of Professional Affairs. As of June 1, Kathryn Kuhn Jefferson will fill this position. She has been working part time as managing editor of *The Carolina Journal of Pharmacy*.

Staff: Kathryn is a pharmacist and we are very fortunate to have such a qualified person with so many talents joining our staff on a full-time basis. She will continue her work with *The Journal*, as well as be involved with membership solicitation, C.E. development and promotion, a liaison to local associations, and other duties as outlined by our Executive Director, Al Mebane III.

We are very fortunate to have such a dedicated staff at the Institute of Pharmacy. I know first hand that Al and Betsy Mebane's hours are not 9:00 a.m. to 5:00 p.m. There are many nights of catch up work and many night and weekend functions to attend. Thank you Al and Betsy for the long hours and the hard work that keep our Association running smoothly. We also want to thank Terri Little and Erie Cocolas for their contributions to an effective working team.

Insurance Committee: We had an active Insurance Committee this year. Chairman Frank Burton and his committee have secured a Store Owner Insurance Policy that has saved members a considerable amount of money.

Constitution & Bylaws Committee: We encouraged the Constitution & Bylaws Committee to develop a new classification of Association membership. This new clas-

sification will add needed support to our Association. You will be hearing more about this. [See page 9.]

Pharmacy Museum Committee: Milton Whaley was appointed co-chairman with W.J. Smith to the Pharmacy Museum Committee. This committee is working with Mr. John Ellington of the N.C. Museum of History and is making good progress towards our goal of a 1925 drug store at the new N.C. Museum of History that is under construction. We understand that the major items for this display—the fixtures and the soda fountain—have been acquired. We thank the chairmen and the committee members for their hard work and diligence.

P21-NC Conference: In April, our Association and Glaxo sponsored a conference called "Pharmacy in the 21st Century: N.C. Are You Ready?" or "P21-NC" for short. It was an important meeting held here in this hotel. There was a N.C. Legislative Panel, a national pharmacy panel, and a N.C. Pharmacy panel. Many critical issues were discussed and their impact on pharmacy practice in N.C. in the next century. As a follow up to the conference, a P21-NC Commission of pharmacy leaders is being formed and will report to the Association. The Commission will be dealing with the definition of the practice of pharmacy, competency, standards of practice, pharmacy technicians, and other issues. This will probably lead to legislation to modify the N.C. Pharmacy Practice Act.

Pharmacist Recovery Network: A task force made up of members of the NCPHA, NCSHP, and the Board of Pharmacy has been appointed to examine the Pharmacist Recovery Network program—known as the PRN program. Fred Eckel has been elected chairman of this task force. This task force is charged with evaluating the status of the program and making recommendations for its future. Funding of the program will be one of its main objectives. Dennis Moore who has been serving as the chairman of the PRN Committee since its inception, is resigning as of June 1, 1990. He and his

committee have done a tremendous job helping drug and alcohol impaired pharmacist with the few resources they had. Dennis, we thank you for a job well done.

State Legislative Committee: Our State Legislative Committee has been very active, and with our lobbyist, Virgil McBride, was able to get a bill passed in the legislature to raise the Medicaid fee to \$4.85 from \$4.24 if there is a reduction in the AWP. Thanks to Jimmy Jackson for his tireless work with a Senate Committee that did not endorse mail order prescriptions for state employees at this time. This battle, however, is not over. We all must stay alert to this threat.

C.E. Seminars: Our Association participated with the UNC School of Pharmacy in providing several well attended C.E. seminars which were well received.

Pharmacy Meetings: Your Association was represented at a number of major pharmacy meetings, such as the:

- Southeastern Officers Conference in Williamsburg, VA
- N.C. Pharmacy Leaders Forum in Southern Pines
- NARD Convention in San Antonio, TX
- NARD Conference on Legislative Affairs in Washington, D.C.
- APhA Convention in Washington, D.C.

You can see your Association is trying to stay abreast of the issues affecting pharmacy as they evolve.

NCPHA Annual Convention: We have added two important features to our Convention this year. There are two sessions of a Board Review for our new graduates. Dean Ron Maddox organized the review session and we thank him. As you see these new graduates at our Convention, please make them feel welcome. Another new feature is a Leadership Training Session for local association officers. Steve Dedrick has been in charge of this and we also thank him for initiating this.

Thank you again for allowing me to serve as your president this year. As you can see,

Continued on page 26

1989-1990 NCPHA COMMITTEE REPORTS

The following reports were distributed at the NCPHA Annual Convention.

REPORT OF THE STATE LEGISLATIVE COMMITTEE

The State Legislative Committee met at the Institute of Pharmacy soon after its membership was established late in the summer of 1989. The topic of the assemblage was solutions to the dilemma of proposed cuts in the Average Wholesale Price (AWP), the cost standard of the Medicaid Program.

The Committee met again on October 18, 1989. After analysis of the membership and leadership of the current legislature, it was decided that the outcome of major legislation introduced at the current time would be uncertain. Efforts were centered on preliminary discussion of bills for which groundwork and research had already been established and passage relatively assured, as well as future major legislative aspirations and methods to increase local pharmacists' awareness of legislative issues and progress. The Committee passed on recommendation to the Executive Committee that we join NCFREE* in an attempt to have more accurate knowledge of legislative members' voting records and inclination on issues.

The final meeting was again at the Institute on March 21, 1990. Having fully discussed legislation which needed attention in both the long and short term, the Committee adopted an "Issue Management Legislative Program" to better organize our pharmacy legislative goals.

The categories of issue management with a brief description of their function where necessary follow.

I. Maintenance (Hold on to what you have.) We must continue to watch those issues that have been decided favorably for pharmacy to make sure we do not lose ground by future legislation.

II. Readiness for Opposition We must be ready to oppose unfavorable legislation.

III. Support Allied Groups We rec-

ommend supporting favorable legislation generated by allied groups, i.e., the Retail Merchants' Association.

IV. New Legislation: Annual

V. New Legislation: Long term

The "Issue Management Legislative Program" as it parallels our current legislative status and goals is outlined below.

I. Maintenance

A. To date, we have fortunately held off attempts to coerce the state to adopt mail order prescription service for its employees. We must continue to monitor efforts to entice the state into mail order. We request that our lobbyist advise us of any change in circumstances he encounters on this issue.

B. Recent proposals for reduction of the AWP cost in the Medicaid Program prompts concern from the Committee. We recommend our lobbyist monitor and relate any future action on this subject.

C. Manufacturers' rebate with regard to Medicaid and state employees is an issue which this committee could resolve neither pro nor con; however, we feel that observation of this issue is in the best interest of the NCPHA.

II. Readiness for Opposition

As stated, the mail order threat for state employees deserves continuous observation, with periodic update of whom to contact and what we should do if it becomes apparent it will be introduced to the State Legislature.

III. Support Allied Groups

We recommend the endorsement of three bills sponsored by the Retail Merchants Association, and upon approval of the Ex-

executive Committee a letter be sent to that association stating such endorsement.

A. The bill regarding civil restitution in the amount of \$200 to \$500 for persons convicted of shoplifting.

B. The bill correcting the technical language of the larceny and embezzlement statute.

C. The bill requesting reinstatement of the fee for the collection of sales taxes.

IV. New Legislation: Annual

A. Whereas, the issue of per diem reimbursement for Board Members (increase from \$35 to \$100 per day) has passed the House and awaits passage in the Senate, the Committee would endorse presentation of the bill, however, the uncertainty of current impasse and the lawmakers' possible failure to realize that it does not affect public funding may prevent its success. We advise that our lobbyist monitor and use his judgement with the bill.

B. We recommend that the Executive Committee promote legislation to control pharmaceuticals in salvage and the proper disposal of salvage.

C. We recommend that the Executive Committee promote legislation requiring the labeling of any legend drug in the possession of individuals other than a prescriber or dispenser. Such label should require:

1. Whom the medication is for (patient).
2. Whom the medication is prescribed by (the prescriber).
3. The name of the drug.
4. The directions for administration of the medication.

V. New Legislation: Long term

We proposed that the Executive Committee promote a better bill for physician dispensing in the 1991 session of the State Legislative using similar language as that of bills recently passed by other legislatures.

The Committee spent considerable time in two of its meetings discussing methods to

improve legislation readiness and pharmacists' awareness of issues. We recommend a quarterly legislative newsletter as an aid to both objectives. The newsletter's first mailing would go to all North Carolina pharmacists with a reference that it is "a one-time free mailing" in an effort to promote Association membership. Subsequent mailings should be directed to NCPhA members only; however, the committee feels that the newsletter could be a useful tool for informing all North Carolina pharmacists about an important individual legislative issue should the NCPhA so desire.

At this juncture, there are a number of legislative issues which need a "watchdog" approach in relation to our Issue Management Program. For clarification and as an aid to our lobbyist, the Committee felt we should list and specify those issues which warrant careful monitoring and corresponding to the Association by him, for example:

1. Attempts to put state employees on a mail order prescription service.
2. Introduction of a manufacturers' rebate bill for Medicaid and state employees.
3. Movement in House or Senate on issues regarding Medicaid.
4. Per diem increase for Board members.
5. Aforementioned bills presented by Retail Merchants' Association which we wish to endorse.
6. Any information he feels necessary and/or helpful with regard to our long-term legislative goal of a better physician dispensing legislation for the 1991 session.

Respectfully submitted,
William Allan Jackson

**NCFREE, North Carolina Forum for Research and Economic Education, is a non-profit, non-partisan organization of individuals, corporations, and trade associates whose common bond is a commitment to maintaining a favorable business climate in North Carolina through political research and education.*

FINANCE COMMITTEE

The Finance Committee of the North Carolina Pharmaceutical Association for the year 1989-90 consisted of the following members: Henry L. Smith, Chairman, Ralph Ashworth, J. Frank Burton, Howard Q. Ferguson, Robert B. Hall, Albert F. Lockamy, A. Rowland Strickland, and A.H. Mebane III.

The committee met at the Association office twice during the year. The first meeting was held on August 31 with the purpose of reviewing the financial statement and audit report of the past year and to set objectives for the coming year.

At this meeting, the committee recommended to the Executive Committee that the repairs and renovations be accomplished at one time (at a cost of \$50,000—\$25,000 of which is budgeted and \$25,000 to be raised from solicited contributions).

The next meeting of the committee was held on November 20, 1989, at which time the budget for 1990 was discussed and presented to the Executive Committee with a recommendation that it be accepted. The following recommendations were also presented to the Executive Committee:

1. Recommend that TMA subscription to the journal be increased to \$25.00 per year.
2. Recommend that members of the Association be encouraged to join as Lifetime Members before the 1990 dues increase.
3. Recommend that an Associate Membership in the Association be discussed.

Following is the financial data from the General Fund.

NCPHA Statement of Income and Expense, For the Year Ending December 31, 1989

Income	
Dues	154,091.00
Other Income	147,577.98
Funds Transfer	20,562.25
Total Income	\$322,231.23

Expense	
Salaries—Benefits	128,280.29
Operating Expenses	193,950.94
Total Expense	

REPORT OF THE CONSTITUTION AND BYLAWS COMMITTEE

Convention Approves Changes

Changes in the NCPHA Constitution and Bylaws were approved at the 110th Annual Meeting held May 23-26, 1990 at the Sheraton Imperial Hotel and Towers, Research Triangle Park. The changes were proposed by the Constitution and Bylaws Committee and recommended by the Executive Committee.

There were essentially two changes made: the first modified the make-up of the Executive Committee; the second modified the mail ballot process.

Executive Committee changes: Effective after the installation of officers for the 1991-1992 year, the Executive Committee will consist of the president, the president elect, the immediate past president, the executive director and six members-at-large serving staggered terms. There will be no vice presidents. Two past presidents will be dropped. In the first election to be conducted under this new Constitution after the first of the year, six members-at-large will be elected. The two candidates receiving the

elected. The two candidates receiving the highest number of votes will be elected to three-year terms, the next two candidates will be elected to two-year terms and the next two candidates will be elected to one-year terms. Thereafter, there will be candidates for two three-year terms.

Mail balloting: The other change adopted affected the way the mail balloting for Association officers is conducted. In the past, the ballots were sent out within one month following the annual convention. Under the changes approved, the ballots will be mailed "approximately four months prior to the date of the next installation of officers...". This means the ballots will be mailed in January prior to the convention in May.

One result of this delay is *The Carolina Journal of Pharmacy* can carry pictures,

biographical sketches and perhaps position statements from the candidates before the mail ballots go out. Another result is the closer proximity of the ballot counting to the installation ceremony. Formerly, the ballots were counted and the results known at least ten months before the next installation ceremony, which seemed to make the installation somewhat anti-climactic.

A proposed change to be voted on at the 1991 Annual Meeting is the addition of Associate Member to the membership categories. An Associate Member is "any person, not eligible for active membership, who is interested in advancing the profession of pharmacy and is willing to support the purpose and objectives of the North Carolina Pharmaceutical Association". The change in the Constitution must be approved at the next annual meeting by three-fourths of those members present. •

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RESOLUTIONS

The following resolutions were proposed and adopted at the NCPHA Convention.

Resolution #1

Whereas, the state of North Carolina is constructing a new Museum of History in Raleigh, and

Whereas, the director of the present North Carolina Museum History is desirous of including in the exhibits of the new Museum of History an example of a complete 1925 drug store.

Whereas, organized pharmacy of the State of North Carolina is desirous of exhibiting a 1925 era drug store as a permanent historical exhibit of a drug store, and

Whereas, the NCPHA is desirous of sponsoring such a historical professional exhibit;

Therefore, be it resolved that the NCPHA announces that the Association will act as the official sponsor of an authentic historical pharmaceutical exhibit, and

Be it further resolved that the Association authorizes the Pharmacy Museum Committee to act on behalf of the Association with appropriate reporting of activities, and

Be it further resolved that the Association authorizes the Committee to act on behalf of the Association in obtaining funds for the exhibit, obtaining materials to be placed in this exhibit, acting as a consultant in placing the exhibit, and

Be it further resolved that the Pharmacy Museum Committee continue to act as a consultant group in the operation of the permanent exhibit once the museum and permanent exhibit opens for viewing by the public, and

Be it further resolved that the NCPHA express its sincere appreciation to Mr. John Ellington, Administrator of the N.C. Museum

of History for making the space available in the new museum and to Mrs. Eve Williamson, executive director of the N.C. Museum of History Associates, for her support and assistance, and to all those who have contributed in any way to this worthy project.

Source: Pharmacy Museum Committee

Resolution #2

Whereas, matters considered by the General Assembly affect the practice of pharmacy,

Whereas, the Legislative Committee of the North Carolina Pharmaceutical Association has met and reported to the Executive Committee on its recommendations;

Therefore, be it resolved that the Association endorse the attached report as a plan for the 1990 and 1991 sessions of the General Assembly.

Proposals of the State Legislative Committee:

The State Legislative Committee proposed the recommendations submitted to the NCPHA Executive Committee in its State Legislative Committee Report. See pages 7-8.

Source: State Legislative Committee •

NCPHA CONVENTION SNAPSHOTS



Top: Al Lockamy (left) and Ralph Ashworth cut the ribbon gate to the exhibits in which 42 companies and organizations participated. Bottom: Fifty Plus Club inductees, from left, William Proctor, Charlotte, Allen Lloyd, Hillsborough, Lloyd Senter, Carrboro, and Jesse Pike, Concord.



Top: Dianne Moody assisted by Frank Burton draw for the \$800 Raffle Prize won by NCPHA member, Tim Poe. Left: Convention speaker, Richard Wuest, dons a collection of convention ribbon badges. Bottom: TMA members, Dick Hoffman, Junior Little, William O'Quinn, and L.M. McCombs. Photos by Qualex.



REPORT OF THE CAMPBELL UNIVERSITY SCHOOL OF PHARMACY

Presented to the North Carolina Pharmaceutical Association, May 24, 1990

*By Ronald W. Maddox, Pharm.D.,
Professor and Dean*



Dean Ronald W. Maddox

Campbell University is still buzzing about the graduation of its charter class from the School of Pharmacy. Forty-three students marched across the stage during graduation activities on May 7. These students represented the first graduates from a new school of pharmacy in thirty-eight years.

Graduation activities began on the evening of May 5, when Glaxo and Burroughs Wellcome pharmaceutical companies co-sponsored a reception for the graduates and their parents. Over two hundred and twenty spouses, parents, faculty members and representatives from each pharmaceutical company were in attendance at the Velvet Cloak Inn to honor the graduates.

Activities continued on May 6 with a hooding and recognition ceremony in the Scott Concert Hall on the Campbell campus. The Class dedicated this activity to the memory of Mr. Howard Q. Ferguson a pharmacist and friend of the School of Pharmacy, who recently passed away.

Dr. William Edmondson, vice president of Professional Relations for Glaxo, Inc., delivered the keynote address to the graduates. Dr. Edmondson encouraged the graduates to "Be open-minded and flexible. Remember, this is a people business. Whichever way you choose to serve, I wish each and every one of you the best in all that you do."

A. H. Mebane III, executive director of the North Carolina Pharmaceutical Association led the students in the Pharmacist's Oath. The students were welcomed into the profession in remarks made by Ralph Ashworth, president of the North Carolina Pharmaceutical Association; Dr. Timothy Poe, president of the North Carolina Society of Hospital Pharmacists; and William H. Randall,

president of the North Carolina Board of Pharmacy.

The University continued its recognition of the School of Pharmacy when Dr. Daniel Nona, Executive Director of the American Council on Pharmaceutical Education, delivered the commencement address. Dr. Nona challenged the graduates to "Search not for black and white answers, but strive to understand the gray areas and to enjoy the ideas themselves. Keep in mind where you came from, where you are, and where you are going."

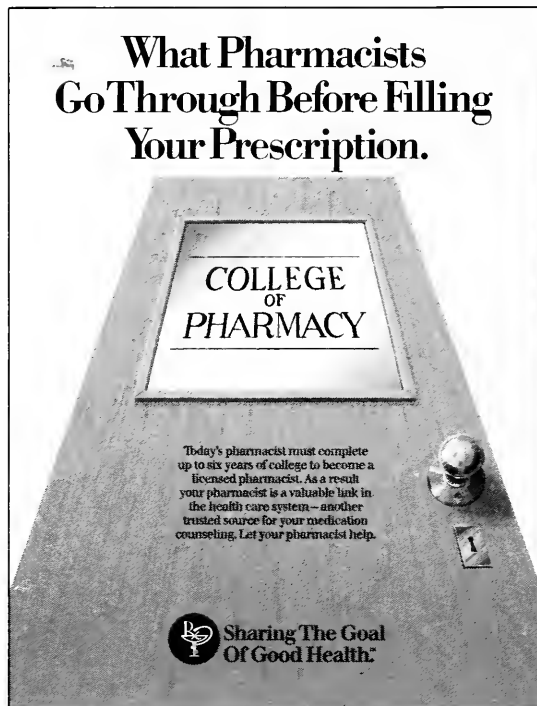
Immediately following graduation, the Woman's Auxiliary of the North Carolina Pharmaceutical Association honored the graduates with a luncheon. At this occasion Betsy Mebane, president of the organization, presented Dean Maddox with a plaque in honor of the first graduating class.

Research activities have started to pay dividends. Dr. Louise Mallet received funding of a project designed to train family caregivers of dependent elderly. This proposal was submitted jointly with North Carolina State University and was based on a pilot project conducted in Harnett County. Drs. Evelyn Diday and Wendell Combost received funding from the Charles Lindbergh Fund for a proposal dealing with monoclonal antibody research.

Our enrollment continues to increase. With the addition of the first-year class this fall,

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our enrollment will be at its maximum of 260. Our entering class of sixty-five students will be made up of 40% males, 60% females, and 80% North Carolina residents.

When hurricane "Hugo" visited the East Coast, our students initiated a university-wide drive to obtain food and other supplies for some of the victims in Charleston, South Carolina. As a climax to this project, a truck loaded with needed supplies and a bus filled with twenty-three students and two faculty members went to Charleston for a weekend of clean-up activities.

As the first class graduates, we at Campbell find ourselves at a crossroads. For the past years we have devoted ourselves to establishing a school of pharmacy that will contribute a vital new element to the profession. Now our goal is to refine our efforts, always striving to make Campbell and the profession of pharmacy stronger in every way. •

STUDENT ADDRESS

*Presented by John Stephenson, President
Campbell University Chapter of ASP
May 24, 1990*

This has been an exciting year for the Campbell University School of Pharmacy. We have completed our fourth year of operation and graduated our first Doctor of Pharmacy class. With this class, we have moved from the initial idea of a School of Pharmacy to becoming a significant contributor to health care in our state. Our Campbell Chapter of the Academy of Students of Pharmacy (ASP) has grown with our school in quantity and quality.

It is vital for any organization to have many civic, service, and educational programs. The Academy has been active this year in all of these areas.

We are proud of our 170 members, which represents 72 percent of our student body. Membership is the backbone of any organization, and we are presently involved in our 1990-91 membership campaign. The membership committee is continuing to

communicate with all students and alumni during the summer months.

We have had another banner year of community service for our Chapter. Included in our projects were a haunted house at the local elementary school which was well received by our community. During Community Pride last November in Lillington, ASP sponsored a booth for diabetic screening.

One of the more enjoyable aspects of the Academy of Students of Pharmacy's yearly functions is attendance at regional and national meetings. These meetings afford us the opportunity to attend educational seminars and lay the foundation for future professional interactions and service. Last November, four of our members attended the regional meeting in Gainesville, Florida. They came back excited about what they had learned and the new professional friendships that they had formed during the meeting. This interest carried over to the national convention in Washington, DC in March of this year, with 21 of our student members attending. During this meeting, one of our members, Ms. Penny Shelton, won second place in the Searle Fellowship in Pharmacy competition. Dr. Fred Cox was her faculty mentor for the project. He was also the project advisor for Mr. Bill Strozzyk who won first place in the Searle competition last year. We believe that it is significant that a new School of Pharmacy has been able to place first and second in two consecutive years in this national competition.

We are also extremely proud of three of our members, Mr. Rusty Mantooth, Mr. Bill Symmonds and Mr. Jerald Cole, for winning NARD research fellowship awards. Dr. Tom Wiser was mentor to all three students. To the best of our knowledge, this is the first time that three such awards have been awarded to students from the same school in the same year.

In the past, we have been able to report about ASP's involvement in the Patient Counseling elective. This year is no exception. The course allows the student to become familiar with the top 200 drugs in a setting where he or she has to explain the use, side effects, and adverse reactions of

selected medications to a patient. This course helps prepare many of our students for the Patient Counseling Competition held each year at the Annual Meeting of the APhA. Mrs. Libby O'Ham was our representative this year. We were pleased to be able to sponsor her trip.

Again this year, ASP sponsored the Teacher of the Year Award received by our Dean, Dr. Ronald Maddox. We also started a new tradition by presenting the Preceptor of the Year Award received by Mr. William Pickard of the Duke University Medical Center. This local selection allows him to compete in the national competition sponsored by Syntex for the National Preceptor of the Year.

The Campbell University School of Pharmacy prides itself in being a close-knit group, much like a family. This year, part of our family will be moving on to practice pharmacy. As a remembrance, ASP has made videotapes available to the first graduating class, their families, and friends of the graduation and hooding ceremonies.

We are looking forward to the regional meeting this November to be held in Chapel Hill, as well as the National Convention in New Orleans next March. In an attempt to allow more students the opportunity to attend the National Meeting, the Academy of Students of Pharmacy has successfully petitioned the faculty to change the dates of Spring Break to coincide with the APhA Convention. We now feel that we could very well have 40-60 students attending the convention next year.

The Academy of Students of Pharmacy at Campbell University would like to take this opportunity to thank our advisor, Dr. Tom Wiser; our dean, Dr. Ronald Maddox; Dr. Dan Teat; and Dr. Fred Cox, as well as the officers and members of our Chapter, for their support and diligent work this past year.

We would also like to take this opportunity to offer very special thanks to the North Carolina Pharmaceutical Association. In addition to making loans available for our students, we call upon many of you during the year for professional advice, and for

these things, we are sincerely indebted. Thank you very much. •

Reports from the UNC School of Pharmacy will appear in the August issue of The Journal.

NCPHA AWARD RECIPIENTS

The following award recipients were honored at the 110th NCPHA Convention.

W. Whitaker Moose, *Mt. Pleasant*
NCPHA Pharmacist of the Year

Virginia Lee Lockamy, *Raleigh*
A.H. Robins Co. Bowl of Hygeia

Randy Gray Ball, *Wake Forest*
Marion Merrell Dow
Young Pharmacist of the Year

Ronald W. Maddox, *Lillington*
Don Blanton Award

Lori Tutterow Setzer, *Winston Salem*
Syntex UNC Community Pharmacy
Practitioner-Instructor of the Year

J. Frank Burton, *Greensboro*
McKesson Leadership Award
NARD Pharmacy Leadership Award

Ralph H. Ashworth, *Cary*
E.R. Squibb Presidential Award

Mrs. Ralph H. "Daphne" Ashworth, *Cary*
Geigy Pharmacist Mate Award

Henry E. Dillon, *Elkin*
Allen A. Lloyd, *Hillsborough*
Charles D. McFalls, *Madison*
Jesse M. Pike, *Concord*
William V. Proctor, *Charlotte*
Thomas W. Russell, *Greensboro*
Lloyd M. Senter, *Carrboro*
Leon W. Smith, *Kannapolis*
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Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chloridazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

Axid® (nizatidine, Lilly)

**Because safety cannot be taken
for granted in H₂-antagonist therapy**

AXID[®]
nizatidine

Minimal potential for drug interactions

**Unlike cimetidine and ranitidine,¹ Axid does not inhibit the
cytochrome P-450 metabolizing enzyme system.²**

Swift and effective H₂-antagonist therapy

- Most patients experience pain relief with the first dose³
- Heals duodenal ulcer rapidly and effectively^{4,5}
- Dosage for adults with active duodenal ulcer is 300 mg
once nightly (150 mg b.i.d. is also available)

References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20:710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
5. *Am J Gastroenterol* 1989;84:769-774.

well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported. **Endocrine**—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

PV 2098 AMP

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Additional information available to the profession on request.



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WOMAN'S AUXILIARY 63RD ANNUAL CONVENTION

Right: Woman's Auxiliary Convention Chairman Carolyn O'Quinn and her husband, William V. O'Quinn.



Below, left: Woman's Auxiliary conventioners gather outside the Duke Chapel. Below, right: Walk-A-Thon participants.



Left: John Zatti, director of Professional Relations, Glaxo Inc., presents illiteracy poster to Ginger Lockamy (right), chairman of the Woman's Auxiliary 1989-90 campaign against illiteracy, and Auxiliary president, Betsy Mebane. Photos by Qualex.

WOMAN'S AUXILIARY PRESIDENT REPORTS ON A SUCCESSFUL CONVENTION

By Mrs. A.H. Mebane III

The 63rd Annual Convention of the Woman's Auxiliary of the North Carolina Pharmaceutical Association met May 23-26, 1990 at the Sheraton Imperial Hotel in Durham, NC. I was helping with registration on Wednesday afternoon and it was wonderful to see everyone as they checked in. All received a "goody bag" filled with useful items from NC Mutual Wholesale Drug Company.

Dianne Moody, Chairman of Ways and Means Committee and other members of her committee were there early in the afternoon selling raffle tickets for the \$800.00 top prize to be given away on Saturday. Many thanks to Dianne and her committee, Jean Morse, Shirley O'Neal and Betty Jane Upchurch, who did an outstanding job raising \$2,413.00 with the raffle. This was the best fundraiser, yet!

Prior to the banquet on Wednesday evening, a lovely reception, sponsored by Glaxo Inc. was held in honor of the Presidents of the NCPHA, the Woman's Auxiliary and the TMA. We were entertained at the banquet by the beautiful songs of the Durham Chorus. The featured speaker was Julia McCullers of Smithfield with her funny down-home presentation of "North Carolina As Explained to English Tourists".

Bright and early Thursday morning at 7:00 quite a few of us were ready for the Woman's Auxiliary Walk-A-Thon around the beautiful grounds of the hotel. Many thanks again to Dianne Moody and her committee who coordinated this. Congratulations to the three medal winners:

Gold - Jay Massey

Silver - Sandra Bisette

Bronze - Daphne Ashworth

for getting the most sponsors and raising the most money. The raffle and Walk-A-Thon proceeds amounted to \$3,768.00. Fantastic!

After our walk, we stopped by the Hospitality Room for breakfast. Ida Wells, Hospitality Chairman and Mary Lou Worley, State

Hospitality Chairman were gracious hostesses with a table spread with delicious goodies anytime you stopped by. Many thanks to all those who served on their committee.

The buses loaded at 10:00 that morning to go to University Towers for a brunch and fashion show in the University Club on the 17th floor—a spectacular view! The tables were decorated with unique fabric flower pots holding pink impatiens. These were made by Carolyn O'Quinn and her convention committee. Neta Whaley coordinated a lovely fashion show by "Images" of South Square Mall, Durham. Members of the Auxiliary, Marilyn Edmondson, Nancy Jordan, Carolyn O'Quinn, Jeanie Wilson and other models from "Images" modeled gorgeous clothes during our brunch. Then it was on to Duke Chapel for an enchanting organ concert and grand tour of the chapel with our knowledgeable hostess, Linda Chandler. This was a special treat.

Thursday evening, the Traveling Members' Auxiliary sponsored a dance featuring "The Band of Oz". Everyone had a great time and we are grateful to the TMA for this fun-filled evening.

Friday morning, once again the table in the Hospitality Room was laden with special goodies for our coffee hour before our Business Session.

The 63rd Annual Business Session began at 9:30 a.m., forty-four members were present. Ida Wells gave the invocation and Carolyn O'Quinn welcomed us to Durham.

NCPHA President Ralph Ashworth and TMA President Rudy Snow brought greetings from their respective organizations. Dot Moose gave an inspirational memorial service for our members, Mrs. Edith Pickard Bunch and Mrs. Janet Haynes Lowder, who had died during the year.

Impressive reports of our year's activities were given by committee chairmen. Five hundred dollars were donated to Mission Air. Three thousand dollars were contrib-

uted to establish the Campbell University Pharmacy School Scholarship Fund. Glaxo Professional Relations, Allen & Hanburys, Glaxo Dermatology and Glaxo Pharmaceuticals, Divisions of Glaxo Inc., funded our Illiteracy Project—a poster, informing low literacy persons that the pharmacist will help them understand their medicine. In May, a poster was mailed to every drug store in the state. We are indebted to Glaxo for their support. John Zatti, director, Professional Relations, Glaxo, presented a framed illiteracy poster to Ginger Lockamy, Chairman of the Illiteracy Project and me during the Business Session. The Vial of Life (VOL) Service Project continues to be strong. The VOL slide presentation and supplies continue to be requested by many people throughout the state.

Frances Jones, Membership Chairman, reported that our membership increased to 233 this year!

We are grateful to the many wholesalers and companies for the door prizes that were awarded at the close of the Business Session. Everyone received a prize! Thanks to our pages, Peggy Jackson and Shirley O'Neal for their assistance.

Our luncheon on Friday was held at the newly decorated Hope Valley Country Club. A lovely, flowered straw hat in the center of each table added a festive touch. We appreciate the support of Rugby Laboratories who sponsored this lovely luncheon. Jerry White of Beaufort gave our Blessing. Our delightful speaker was Jimmie Butts of Raleigh. Her topic was "Laugh for the Health of It". She took us on a journey to find the humor within us and showed us how laughter enhances your mental health by alleviating your stress. She was great!

Eloise Watts of Burlington was awarded a Life Membership for her outstanding service to the Auxiliary. Jewell Oxendine of Charlotte made the presentation. Congratulations to Eloise for this much deserved honor.

Ruby Creech conducted a beautiful and meaningful installation service for the 1990-1991 officers. The president's gavel changed hands to our new president, Mary Lou

Worley of Princeton. I know we will have an exciting and successful year under her capable leadership. My thanks to each of you for the beautiful silver tray presented to me in recognition of my term as president.

Friday evening, the conventioners had lots of fun at a picnic and baseball game at the Durham Baseball Park. It was an exciting game between the Durham Bulls and the Winston Salem Cubs. The Durham Bulls won!

At the close of Saturday's NCPHA Installation Luncheon, we had our drawing for the raffle prizes. Congratulations to Tim Poe of Apex, who won the \$800.00 cash and congratulations also to the other winners: Dixie Wier, Chapel Hill - VCR; Sallye Lockhart, Raleigh-luggage; Mickie Rose, Greensboro - luggage; Rudy Snow, Granite Falls - microwave; Bill Wilson, Raleigh - microwave; Frances Jones, Oxford-food processor; Tillie Price, Raleigh - \$50.00 dinner certificate; Whitney Swatzon, Campbell University - Polaroid camera. Thanks to everyone who participated in this fund-raiser! It was a great success!

A special thank you to Carolyn O'Quinn, our Convention Chairman and her committee members: Neta Whaley, Dianne Moody, Ida Wells, Marilyn Edmondson, Eric Cocolas, Dot Bullock, Nancy deBruyne, Dixie Peterson, Lib Rogers, Dixie Wier, Linda Zatti, and Kathleen Phillips for the many long hours of hard work to arrange a great and memorable convention.

Many thanks to my Executive Board for all their support, guidance and love and to all the committees who did a tremendous job at their appointed tasks.

Many thanks to Al, Erie, Terri and Kathryn for all their hard work for the Auxiliary and the Association.

Thank you for the honor of serving as your president for 1989-1990. You ALL are special to me!•

THANKS TO THE 1990 NCPHA CONVENTION SUPPORTERS!

The following companies and organizations supported NCPHA's 1990 Convention by participating in the Exhibit Program and by donating gifts, door prizes or other materials. NCPHA would like to extend a special thanks to each of them for their generosity.

Alco Health Services/Smith-Higgins
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UNC-CH School of Pharmacy*
United Research Laboratories
United Research Laboratories
VIP Computer Systems, Inc.
W.H. King Drug Co.
Whitman's Chocolates
Wyeth-Ayerst Laboratories

***These companies were an integral part of the Convention because they provided financial support for speakers and events for the educational and social programs of our meeting.**

RITE OF THE ROSES 1990

Conducted by Steve and LaRue Dedrick

Each year at the beginning of the NCPHA Annual Convention, we pause to honor the deceased members of our Association. This reflection provides us the opportunity to remember our departed colleagues and friends, while reminding us of our own mortality.

During this Rite of the Roses conducted by Steve Dedrick and his wife, LaRue, a rose was placed in a vase as the following pharmacists were recognized. Dedrick instructed those present, "to renew our commitment to our fellow man and to our profession as we strive to fulfill pharmacy's societal covenant in honor of those we recognize today".

A copy of the Rite of the Roses ceremonial address delivered by Steve Dedrick may be obtained from the NCPHA office.

Fletcher Sims Dean, *Lumberton*

Howard Quinn Ferguson, *Randleman*

Oscar Walter Mills, *Eden*

Herman Elmore Blake Jr., *Concord*

John Watson Allen, *Highlands*

William L. Brady III, *Lumberton*

John Calvin Brantley Jr., *Raleigh*

John Robert Clarkin Sr., *Hamlet*

Billy Thomas Coward, *Kannapolis*

William Donald Horton, *Wilkesboro*



This award is about more than pharmacy. It's about life.

**Ask Randy Gray Ball,
Wake Forest, North Carolina.**

Receiving an award represents quite an accomplishment. But receiving one that recognizes the highest standards of professionalism is really special.

Ask Randy Gray Ball, Marion's 1990 "Distinguished Young Pharmacist Award" recipient in the state of North Carolina.

This award recognizes pharmacy, not only for the proud and respected profession it is, but also for the quality of life it helps provide. And the award is given annually to a young pharmacist in each state, selected by his or her peers, who best exemplifies the ideals of the profession.

Put another way, our recipients are more than good pharmacists. They're good people. And it's obvious they work just as hard at life as they do in their profession.

No question about it, our Distinguished Young Pharmacists are very special. And we are extremely proud to present to you the 1990 award recipient from the state of North Carolina.



MARION MERRELL DOW INC.

Your prescription for better business.

THE 1990 CHARTER GRADUATING CLASS OF THE CAMPBELL UNIVERSITY SCHOOL OF PHARMACY



Photo by Todd Scarborough.

The First Graduation Day For Campbell U. School of Pharmacy, Buies Creek

Of the 691 undergraduate and graduate degrees awarded by Campbell University May 7, 1990, forty three went to the School of Pharmacy for the first time.

The School of Pharmacy's charter class received Doctor of Pharmacy degrees at the university's 104th commencement, which was dedicated to pharmacy.

Daniel Nona, executive director of The American Council on Pharmaceutical Education in Chicago, delivered the commencement address. He also was awarded an honorary Doctor of Science degree.

At a separate ceremony, the first Campbell University School of Pharmacy Hooding and Recognition Ceremony on May 6, Dr. William Edmondson, vice president for professional relations at Glaxo Inc., delivered the keynote address. •

Campbell University School of Pharmacy Charter Class of 1990: Who They Are, Where They Are Going

Name, Hometown
Placement (at press time)

Robert Alan Ashworth, Fayetteville
Medical College of VA residency
Teresa Lynn Baker, Hope Mills
Moore Regional Hospital, Pinehurst
Norman Dewitt Banks, Raleigh
Mast Drug Co., Williamston
Kimberly Eakins Basden, Watha
Pender Memorial Hospital, Burgaw
Jennifer Lynn Beck, Lexington
Hugh Chatham Hospital, Elkin
Kimberly Mays Biggers, Aberdeen
Richmond Memorial Hospital, Rockingham
David Tyson Broome, Wilson
Uncommitted
Philip Wilson Broome, Wilson
Uncommitted
Raymond Eugene Brown, Clarkton
Medical University of SC residency

N. Catherine Sessoms Burgess, Stedman
Revco Drugstore, Burgaw
 Lisa Kim Cook, Bybee, TN
St. Mary's Hospital, Richmond, VA
 Carroll Lynn Graham, Fayetteville
UNC-Chapel Hill Fellowship
 David Todd Harman, Waynesboro, VA
Mast Drug Company, Smithfield
 Karen Lynn Harrell, Goldsboro
Revco Drugs, Wallace
 W. Cameron Haskett, Elizabeth City
Rhode Island Hospital Clinical residency
Providence, RI
 Johnny Wilson Hayes, Air Bluff
Medical College of VA residency
 John Harlen Higgins, Forest City
Eckerd Drugs, Rutherfordton
 Christopher Todd King, Greensboro
Campbell University Geriatrics residency
 Michael Paul Lamberth, Reidsville
C.J. Harris Hospital, Sylva
 Connie Ruth Lee, Four Oaks
Campbell U. Drug Information residency
 Elton Wayne Long Jr., Fayetteville
Eckerd Drugs, Dunn
 Betty Jean McCloud, Princeton
Uncommitted
 Tammy Bordeaux Malpass, Autryville
Revco Drugs, Clinton
 Diana Marie Maravich, Buies Creek
Medical College of VA residency
 Robin Barnes Michael, Dunn
Revco Drugs, Fayetteville
 Geri Ellis Mills, Goldsboro
Wayne Memorial Hospital, Goldsboro
 Joseph Stephen Moose, Mt. Pleasant
Moose Drug Co., Mt. Pleasant
 Carol Ann Morris, Fayetteville
Uncommitted
 Susan Rene Nixon, Edenton
Revco Drugs, Edenton
 Marjorie Anne Pace, Fayetteville
Eckerd's Drugs, Albemarle
 Jeffrey Ray Pendergrass, Hope Mills
Owen Healthcare, Indiana
 J.P. Renfrow Jr., Smithfield
University of SC residency
 Kathy Leigh Riley, Clearwater, FL
Gaston Memorial Hospital, Gastonia
 Tommy Dale Roberts, Newport, TN
Owen Healthcare, Nevada

Martha Rosser Sapp, Sanford
Central Carolina Hospital, Sanford
 Adrienne Denise Scott, Raleigh
V.A. Hospital residency, Tampa, FL
 Lisa Bass Smith, Dunn
Rite Aid Drugs, Rosebor
 William R. Strozyk, Knoxville, TN
University of Maryland residency
 Donna Frazier Thompson, Bladenboro
Southeastern Hospital, Lumberton
 Christy Wainwright Whitley, Stantonsburg
Uncommitted
 Luanne K. Williams, Pleasant Shade, TN
UNC-CH Fellowship in Drug Information
 Michael Glenn Williams, Fayetteville
Southeastern Hospital, Lumberton
 Douglas Montell Yoder, Buies Creek
N.C. Baptist Hospital residency, Winston
Salem •

ASHWORTH ADDRESS

Continued from page 5

it has been a busy year. I want to thank our staff, our local members, our committees, our task force, and all of you for making this a good year.

I want to especially thank my wife, Daphne, for her support and encouragement. She is truly my helpmate in all my endeavors.

In closing, I would like to say that I had the privilege of welcoming both graduating classes of Campbell University and UNC Schools of Pharmacy to our profession and encouraging them to join our Association. I would like to repeat to you a portion of the address that I made to them—"There have been many changes in the practice of pharmacy in the last few years and there are many more on the horizon. Your Association will play an important role in shaping our future and we need you to be a *participant not a spectator* in this evolution."

I want to also thank all of our sponsors for their contributions to our Convention and for their valued support throughout the year and thank you for your support and being here today. •

Pharmacy in the 21st Century

A strategic planning conference

In March of 1984, the profession sponsored a precedent-shattering conference called Pharmacy in the 21st Century. The goal of the Conference was to examine social, economic, technological and health care issues in the 21st century and arrive at conclusions as to how these future scenarios would affect pharmacy practice and education. In a post conference evaluation, the leadership of all national pharmaceutical organizations concluded that another conference should be held in five years.

So it was that the profession sponsored another Pharmacy in the 21st Century Conference October 11-14, 1989 in Williamsburg, Virginia. Backed by 17 national pharmacy organizations, the Conference drew together 108 participants which included practitioners, pharmacy leadership, government, and corporate health-care decision makers.

During the Conference, participants were divided into small discussion groups in order to tease out and discuss major issues that will confront the profession over the next 10 to 20 years. Three hundred seventy-five issue statements generated by

the discussion groups were edited and condensed to 112. In a final plenary session, the 112 statements were presented to Conference participants to develop a consensus on the importance of the issue statements as they will affect the pharmacy profession in the next century. At the conclusion of the Conference, the representative groups were encouraged to use the consensus statements in their strategic planning activities.

The complete Conference proceedings can be found in a supplement to the Winter issue of the *American Journal of Pharmaceutical Education*. Copies of the Conference Executive Summary, prepared by George H. Cocolas, can be obtained from NCPHA.

To carry forward the ideas and objectives of the Pharmacy in the 21st Century Conference, a local conference entitled, "P21 NC...Pharmacy in the 21st Century: Is North Carolina Ready?" was held April 19, 1990.

The following article briefly describes the local Conference and highlights recurring themes of the speakers' presentations.

IS NORTH CAROLINA READY?*

Conference explores options for pharmacy's future

By Sandra Hak

They sought a "clear vision", "a consensus of our mission", a chance to get pharmacy's story straight here at the turn of the century".

On April 19, 1990, about a hundred pharmacy leaders were brought together to initiate the process of strategic planning for North Carolina pharmacy. They met at a conference sponsored by Glaxo Inc. and the North Carolina Pharmaceutical Association held at Research Triangle Park.

Twenty-four highly-respected representatives of national and state groups gave their views and opinions. What did they say? Here are a few statements which represent recurring themes.

- We need to look at key issues, define goals and objectives, and formulate an action plan, ultimately a strategic plan.

- A pharmacist must be the interpreter and implementor of optimization of drug therapy. We must prevent drug misadventures by being interventional, proactive pharmacists.

- Pharmacy's product is information, not the drug alone. We must focus on outcome responsibility.

- We need to educate society, policy makers and payers about what pharmacists can do for them.

- The cost of pharmaceutical care and the pharmaceutical product must be separated. We must move beyond simply dispensing a product to obtain reimbursement for cognitive services.

- We must market the value of the pharmacist's service and its benefit for the public.

- We need changes in education to match changes in trends.

- How can we best follow pharmacy's mission in the midst of an era of cost containment?

- Pharmacists must work on ways to implement integration of services, to have pharmacies and pharmacists physically located at the site of medical care. (President of NC Medical Society)

- We must focus more on public health matters and needs of individual patients.

- Pharmacists can be cost savers. We must convince payers of pharmacy's value by finding ways to measure quantity and quality of services.

- Pharmacists must communicate with their legislators on health policy issues.

Representatives from AACP, APhA, ASHP, NACDS, NARD, and PMA gave their views from a national perspective. A North Carolina Panel consisted of representatives from NCPhA, NCSHP, NCBP, UNC and Campbell University Schools of Pharmacy, chain stores (Kerr D.S.), NC Medicaid, industry (Burrroughs Wellcome), third party payers (BCBS), NC Medical Society, and NC Citizens for Business and Industry. A NC Legislative Panel was comprised of three members of the House of Representatives.

*Originally published in the *NCSHP Newsletter* Vol. 13, No. 3, June 1990.

P21-NC COMMISSION PLANS FOR THE FUTURE OF PHARMACY IN NC



Dr. Thomas H. Wiser, professor and chairman, Department of Pharmacy Practice, Campbell University addresses the P21-NC Conference. Seated are Conference panelists—national and state pharmacy leaders, state medical leaders, and business and government officials. Staff photo.

As a follow-up to the P21-NC Conference held April 19, 1990 in Research Triangle Park, a P21-NC Commission led by representatives from the North Carolina Pharmaceutical Association and Glaxo Inc. has been formed.

The purpose of the Commission is to further discuss how the pharmacy profession needs to address key issues at the state level and to identify the steps necessary to develop a state-wide plan of action.

The Commission's first agenda item will be to assist the newly formed Task Force on Pharmacy, a group organized by the N.C. Board of Pharmacy to make recommendations on four critical issues in pharmacy:

- a new definition of pharmacy practice
- pharmacy technicians
- standards of pharmacy practice
- practice competency and an external Pharm. D. program

Reports of future actions taken by the P21-NC Commission will be published in *The Carolina Journal of Pharmacy*.

Members of the P21-NC Commission are: William Edmondson, Glaxo Inc. (chairman), Alfred H. Mebane III, NCPhA, Fred Eckel, UNC School of Pharmacy, James McAllister, NCSHP, Daniel Teat, Campbell University School of Pharmacy, David Work, NCBP, Donald Peterson, N.C. Mutual Wholesale Drug Co., Jimmy Jackson, Kerr D.S., J. Frank Burton and Ralph Ashworth, NCPhA; Benny Ridout, N.C. Medicaid, and Jo Whitehead, Burroughs Wellcome. Ex officio members are the NCBP's Task Force on Pharmacy chairmen: Cindy Bishop, Gaston Memorial Hospital, chairman of the Committee on Standards of Practice, John Zatti, Glaxo Inc., chairman of the Committee on the Definition of Pharmacy Practice, Steve Dedrick, Duke University Medical Center, chairman of the Committee on Pharmacy Technicians, and Thomas Wiser, Campbell University School of Pharmacy, chairman of the Committee on Practice Competency, and information liaisons, Kathryn Jefferson, NCPhA, and Sandra Hak, NCSHP.



HOW DOES WHAT YOU KNOW COMPARE WITH WHAT YOU NEED TO KNOW?



P·R·E·P

Pharmacist's
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1990 PHARMACY CALENDAR

July 27	Mortar and Pestle Award Dinner, Mt. Pleasant
August 3-5	Southeastern Officers Conference, Hilton Head, S.C.
August 18	P21-NC Commission, Location TBA
August 28	Pharmacy Week Committee, Institute of Pharmacy
September 6-9	NCPHA/Campbell University School of Pharmacy 1st Annual Seminar on "Issues in Pharmacy Today", Asheville
September 16	NCPHA/UNC Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination, Durham Hilton
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 6	Pharmacy Fact Day (Phone-In), Charlotte, Durham, Fayetteville, Raleigh, Winston Salem
October 6-13	NC PHARMACY WEEK
October 10	Woman's Auxiliary Fall Convocation, Institute of Pharmacy
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
October 21-25	NARD Annual Convention, Nashville, Tenn.
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, Nev.

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WELCOME, NEW MEMBERS!

The following persons have become new members of NCPHA since the publication of our last journal issue. They have joined more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Todd King, *Buies Creek*
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Charles H. Griffin, *Charlotte*
Krisite L. Jackson, *Winston Salem*
Glenn T. Kirschke, *Clyde*
Lisa A. Thurlow, *Sanford*
Lynn Koonce Whitt, *Durham*
Luanne K. Williams, *Angier*
Max E. Mahlke, *Fayetteville*
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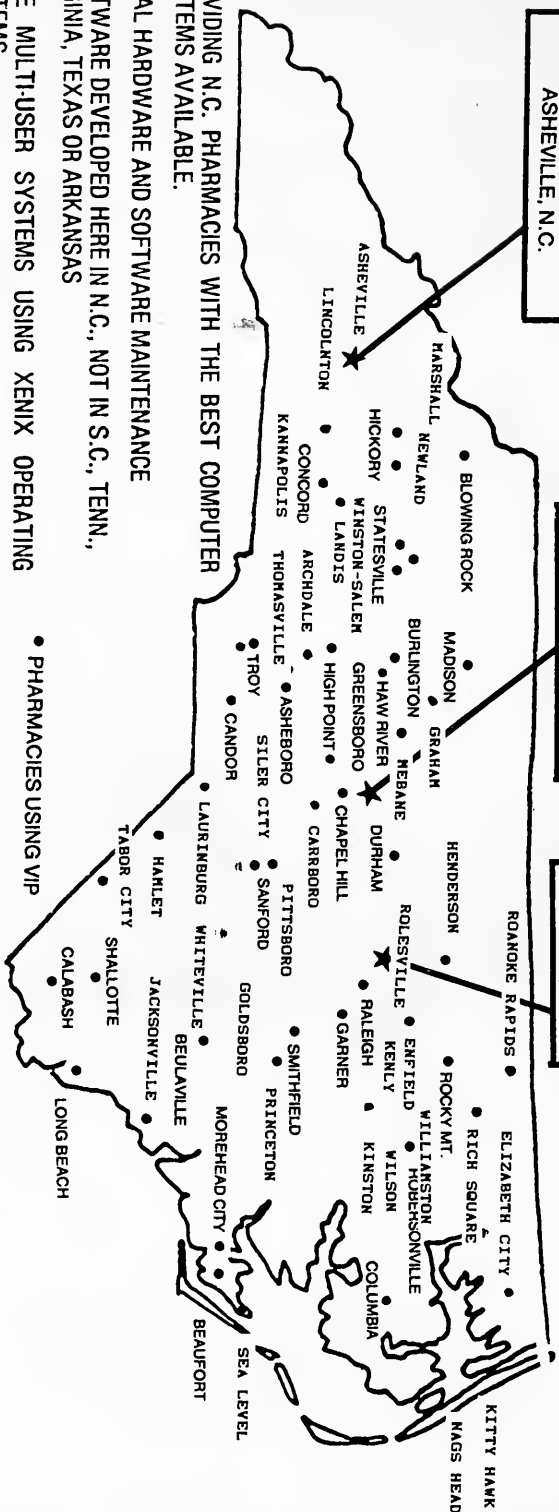
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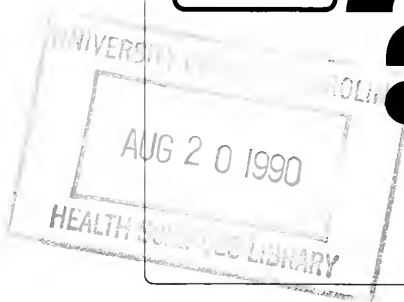
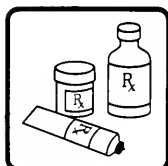
THE CAROLINA JOURNAL OF PHARMACY

NUMBER 8

VOLUME 70

AUGUST 1990

Ask Your Pharmacist
About Medicines



The Woman's Auxiliary illiteracy poster debuts at drug stores around the state. See story on page 11. The poster was supported by an educational grant from Glaxo Professional Relations (Allen & Hanburys, Glaxo Dermatology, and Glaxo Pharmaceuticals—Divisions of Glaxo Inc.)

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Sexually active adults will be urged to send for a free guide that explains how to perform a GSE. The guide discourages self-diagnosis and encourages seeing a healthcare professional if anything suspect is found.

While STDs are currently regaining their foothold on the American population, the GSE program offers a promising outlook for reducing their spread.

*The American Academy of Dermatology, the American Academy of Family Physicians, the American College of General Practitioners in Osteopathic Medicine and Surgery, and the American Osteopathic Association.



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THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

AUGUST 1990

VOLUME 70

NUMBER 8

ISSN 0528-1725

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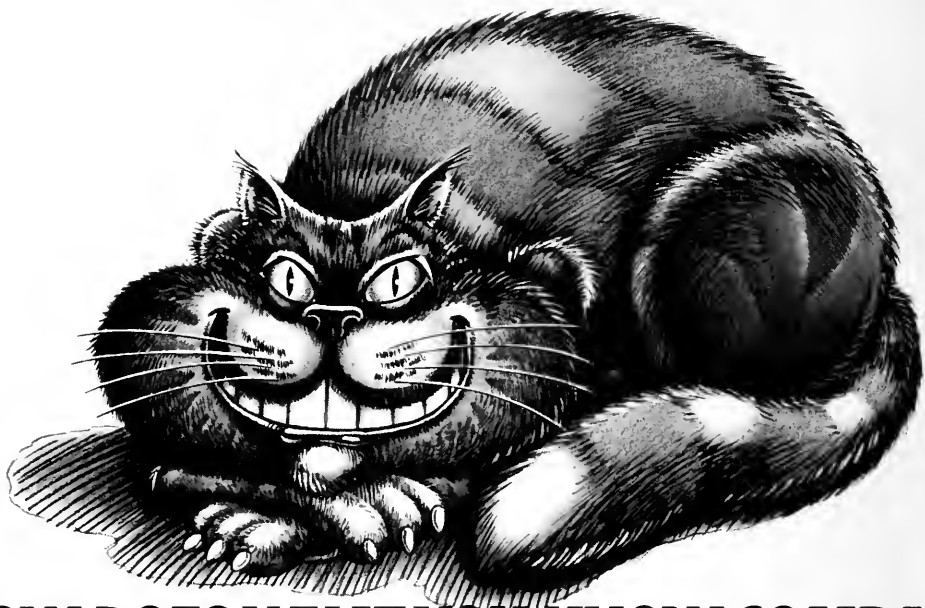
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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental US). Single copy price is \$2.50. Overseas rates on request. Second class postage paid at Chapel Hill, NC.



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CONTINUING EDUCATION

THE PRESIDENT'S PAGE

J. FRANK BURTON
NCPHA President



President J. Frank Burton

This month's journal cover and accompanying article feature the pictogram poster being distributed by the NCPHA Woman's Auxiliary to every drug store in North Carolina. This project was initiated by the Auxiliary because of their concern about the large number of functionally illiterate persons (approximately 800,000) in our state who cannot read the prescription labels on their medications. The poster uses graphic pictures to convey the message that pharmacists are willing to help these patients by providing them with the special attention and counseling they need regarding the use of their medications. Hopefully, this will encourage patients who cannot read to be less reluctant to ask for our help when they bring in a prescription.

There can be no question that this project addresses a major problem in our state and our nation. But the considerable time, money, and effort already expended will be wasted if we community and clinic pharmacists do not do our part! Not only must we prominently display the poster (either in the front window, or at the pharmacy check-out, or both!), but we must back up the poster's message by demonstrating our willingness to counsel ALL our patients/customers. Sometimes, this may be just a few brief comments about the prescription, and sometimes, more elaborate discussion may be necessary. The important thing is to establish that you not only welcome, but encourage questions by people about their medications. Then, those who cannot read

and understand their prescription label, for whatever reason, will be less self-conscious and less reluctant to ask for help. People who cannot read are usually very good at hiding their handicap, so it is often very hard in the course of filling their prescriptions to distinguish those patients that may need oral instruction on how and when to take their medication. But, if they perceive that it is standard operating procedure for the pharmacist to talk to his patients/customers about their prescription, we will have a much better chance of getting that information to those who need it!

There are many reasons given why we pharmacists cannot afford not to counsel patients about their medications—no matter how busy the practice setting. The threat of mail-order pharmacy, the need to convince third party payers that we should be reimbursed for nonproduct services, the specter of mandatory counseling legislation if we do not do it voluntarily, are just a few of the incentives most commonly given. But, certainly, there can be no greater reason than the need to assure that as many of the people we serve as possible are leaving our pharmacies with the knowledge they need to take their medication correctly! •

FROM THE MAILBAG

UNC-CH PHARMACY SCHOOL: RX FOR BIG BUCKS?*

July 16, 1990

Editor

Greensboro News & Record

200 E. Market St.

Greensboro, NC 27401

Dear Sir,

Your headline in the Sunday, July 15th edition of the *Greensboro News & Record*, "UNC-CH pharmacy school: Rx for big bucks?" was certainly an attention grabber, as I am sure it was designed to be. I am concerned, however, that the short article detailing the results of a survey of 1988 graduates of the UNC System regarding their salaries one year after graduation probably left your readers with some erroneous assumptions about a career in pharmacy.

Yes, pharmacy graduates do earn an impressive starting salary when compared to many other careers. The reason for this is the age old principle of supply and demand. The two pharmacy schools in N.C. cannot come close to graduating enough pharmacists to meet the rapidly growing manpower needs of retail drugstores, hospitals, and the pharmaceutical industry.

It is important to realize, however, that the five or six years (depending on the curriculum) it takes to get a degree in pharmacy is not the actual "ticket" to the "big bucks" referred to in your article. That goal can be achieved only after the graduate has completed the required internship, then taken and passed the arduous and extensive examination for licensure given by the N.C. Board of Pharmacy.

And because the "market value" of that license to practice pharmacy is relatively the same whether held by a new graduate or a pharmacist with thirty years experience, the reality of a career in pharmacy is that, with few exceptions, no matter how long you practice you can never expect to earn a salary much higher than whatever the most recently licensed graduates are getting!

Therefore, I would encourage anyone interested in pursuing a career in pharmacy to do so because it is a stimulating and challenging profession that offers a wide range of practice opportunities, and not because of any expectation of great wealth.

Sincerely,

J. Frank Burton, P.D.

Greensboro

*Mr. Burton's letter was in response to a front-page article that appeared in the Sunday, July 15, 1990 edition of the *Greensboro News & Record*. The article discussed the results of a survey conducted by the UNC System General Administration which polled about 41 percent of the 10,484 graduates of North Carolina's 16 universities in spring 1988. The survey showed that UNC's School of Pharmacy graduates were making the highest median salary of \$38,000 just one year after graduation—more than business majors at \$20,040 and engineering majors at \$30,000.

The highest salary among the 23 pharmacists who responded to the survey was \$48,000; the lowest was \$29,120.

A similar article appeared in *The Chapel Hill Newspaper*. •

REPORT OF THE UNC SCHOOL OF PHARMACY AND THE PHARMACY FOUNDATION OF NORTH CAROLINA, INC.

Presented to the North Carolina Pharmaceutical Association Annual Convention

RTP, North Carolina, May 25, 1990

By Dean Tom S. Miya

It is a pleasure and a privilege to present this report to this the 110th Convention of the North Carolina Pharmaceutical Association. My fourteenth year as Dean of the School of Pharmacy has been one of increased activity, retrenchment, renewal, frustrations and challenges. The State's revenue short-fall prevented filling of faculty and staff vacancies until the new fiscal year—July 1, 1990. Receiving high priority, undergraduate instruction, however, hardly missed a beat. The Pharmacy Foundation of North Carolina, Inc. has played a primary supporting role during this crisis.

On the upside, T. Steve Wilson of Greensboro, who received the Practitioner of the Year Award from the School, also received national honors as the National Practitioner of the Year at the NARD meeting. Lisa Grimes was appointed Assistant Dean for Development. Joe Whitehead, Vice President, Burroughs Wellcome Company, received the School's Distinguished Service Award. A Board of Visitors for the School was created. The members of the Board are Leonard J. DeMino, Vice President, National Association of Chain Drug Stores; Joseph G. Dilger, Vice President Parke-Davis/Warner-Lambert; Harold Godwin, Director, Fayetteville AHEC; Joseph Graedon of People's Pharmacy fame; Seymour Holt, Vice President, Dista Products; Frank Kung, President, Genelabs, Inc.; James McAllister, President, American Society of Hospital Pharmacists; Whit Moose, First Vice President, National Association of Retail Druggists; Gerald Mossinghoff, President, Pharmaceutical Manufacturers Association; Ralph Rogers, President, Pharmacy Foundation of North Carolina; David Savello, Vice President, Glaxo Inc.; Rollie Tillman, Direc-



Dean Tom S. Miya. Photo by Qualex.

tor, Institute of Private Enterprise; Charles West, Executive Vice President, National Association of Retail Druggists; Joe Whitehead, Vice President, Burroughs Wellcome Company; and alternate Maurice Bectel, President, Pharmaceutical Manufacturers Association Foundation.

On the education side, Professor Khalid Ishaq won one of four University-wide Students' Undergraduate Teaching Awards.

The B.S. program has the fourth largest enrollment (525 students) in the last three years of the five-year program for all schools of pharmacy in the U.S. The entering class of 165 students was selected from a qualified applicant pool of twice this size. The Pharm.D. Program is limited to 15 entering students. This year 65 qualified student applied for 15 spaces. The class is currently 68.8% female and reflects the national trend as well as the applicant pool. The applicant pool consisted of 67% UNC at Chapel Hill students. This year's applicant pool consisted of 12 students ranked #1 and 11 ranked #2 in their high school classes. This high-quality student body is expected to continue as we work towards approval of the single entry-level Doctor of Pharmacy degree.

Christine Teague, President of ASP, will expand on student activities. Let me say, however, that I am amazed at the range of activities in which they are involved. Mark White received the Glaxo Good Govern-

ment Award; the ASP chapter received one of ten national awards to support their "drug abuse" program; and the UNC-ASP chapter was one of five chapters to win membership awards. Again this year, the Student Senate Committee on AIDS Awareness was the winner of the first place award in the National Pharmacy Intercollegiate AIDS Awareness Competition. Significant was the 75th anniversary celebration of the Beta Xi Chapter of Kappa Psi, coinciding with their hosting the Province III meeting with almost 200 attending. In April, the Kappa Psi brothers in brief, but impressive and touching ceremonies laid a wreath on the grave of Fannie Jackson Andrews who was instrumental in the development of the current Chapter building. The graduate students in Pharmaceutics will be hosting faculty and students in the Eastern Region next week, and the ASP will be hosting the District meeting this fall. In addition to these activities, the caring nature of our students is exemplified by successful bloodmobile drives and fund-raising for AIDS and Hurricane Hugo victims. Their activities are endless.

A sad note was the passing of Howard Quinn Ferguson on March 31, 1990. This exceptional pharmacist, humanitarian and entrepreneur was more than just a friend of the School. He will be remembered in perpetuity, not only through an annual lecture which will carry his name, but through his endowment and trust funds.

The AHEC Program, through which our experiential and many service programs are accomplished, continues in an unabated and quality-oriented direction. The master practitioner/instructor demonstration project, under the directorship of Steve Caiola, was unveiled at the Annual Meeting of APhA held in Washington, D.C. The standing-room-only crowd received it enthusiastically.

The Continuing Education Program, under Dr. Betty Dennis, also flourishes. The number of hours of instruction more than doubled in the years 1984-1989, from 309 to 636 hours. With the William and Ida Friday Continuing Education Center scheduled to

be completed shortly, we are excited about the possibilities of new types and modes of delivery of continuing education.

The UNC School of Pharmacy Alumni Association created and installed a handsome sign in front of Beard Hall which was dedicated April 8 during the Association's Annual Meeting. At the luncheon banquet William Adams received the Alumni Distinguished Service Award.

Research programs are continuing to increase, but pressures of lack of space are a continuing concern. Extramural grants and contracts for 1988-89 reached \$2.3 million. An additional \$3.8 million was received by various units other than the School of Pharmacy where our faculty played a major role in multidisciplinary research. The research endeavor is highlighted by one invention disclosure a month and several actual patents per year. Exciting new chemical entities in the anti-tumor and anti-AIDS fields are currently under development. From basic new chemical discoveries to drug delivery systems, to clinical drug development, to identifying problems in rest homes, our research programs are making contributions to quality health care.

PHARMACY FOUNDATION OF NORTH CAROLINA, INC.

The 43rd Annual Meeting was held on Wednesday, October 25, 1989 at The Carolina Inn. The officers re-elected are Ralph P. Rogers Jr., president; E. A. Brecht, Vice President; and Tom S. Miya, Secretary. Indicated in the table below are the Directors of the Foundation and their terms of office:

Paul B. Bissette Jr.	1992
Banks D. Kerr	1991
Charles D. Blanton	1990
W. Whitaker Moose	1990
E. A. Brecht	1991
Ralph P. Rogers Jr.	1991
George R. Buchanan	1993
C. Louis Shields	1993
Laura G. Burnham	1993
W. J. Smith	1991
James L. Creech	1992
Mitchell W. Watts	1992

Harold V. Day	1991
W. Artemus West	1990
William H. Edmondson	1990
Lloyd M. Whaley	1993
Sara J. Hackney	1990
Josiah R. Whitehead	1992
Robert B. Hall	1993
William H. Wilson	1992
John C. Hood	1993
Barney Paul Woodard	1992
Pamela U. Joyner	1990
Frank F. Yarborough	1991

Honorary Directors: Howard Q. and Mescal Ferguson

A special treat for the Directors and guests during lunch was a sampling of the students' "Just Say No to Drugs" program designed for presentation to elementary schools, led by Katurah Hartley.

Among the many items of interest which took place during this reporting year was the establishment of The Howard Q. and Mescal Ferguson Merit Scholarships for Doctor of Pharmacy students and the establishment of a major trust fund from the same individuals. The Foundation assisted in a major renovation of the Kappa Psi Fraternity located on Finley Road, and concurrently the Fraternity retired a \$10,000 bond and established a Kappa Psi scholarship through the Foundation. The Foundation is pleased to be of assistance to student groups with this type of leadership.

Prudent spending policies which meet the minimum requirements of the IRS for a 501C3-designated organization, coupled with its fund drive and investment policy, have been responsible for the Foundation's significant growth. With current assets at over \$3M, we are looking forward to the time that the Foundation can expand its activities.

With critical needs for additional classroom and research space, the Pharmacy Bicentennial capital campaign drive will seek at least \$5M from the private sector to assist towards an addition to Beard Hall. The foundation will be the primary fund-raising arm.

The Pharmacy Foundation of North Carolina continues to play a significant role in the goals and aspirations of the UNC School of Pharmacy. •



Christine Teague, President, ASP, UNC Chapter. Photo by Qualex.

ACADEMY OF STUDENTS (ASP) OF PHARMACY, UNC CHAPTER

ANNUAL REPORT 1989-90

*Presented at the NCPHA
Annual Convention, May 25, 1990
By Christine Teague, President*

I am constantly amazed at the desire, drive and dedication of my fellow pharmacy classmates. In keeping with the tradition of past performance and setting standards for the years to come, UNC's chapter of the Academy of Students of Pharmacy continues in its goal toward being the best it can be. Regardless of the magnitude and pressures of the academic courseload, and for many, the activities of fraternal organizations, a large number of pharmacy students devoted a great deal of time and effort to achieve ASP's overall organizational objectives throughout the year.

As we are the student branch of the American Pharmaceutical Association, our chapter's purpose is to publicize current issues relevant to the practice of pharmacy as well as to health promotion and disease prevention. ASP is also the single unifying

voice and representation of every pharmacy student and we encourage all in the school to become a member. This past year, 370 students joined during the membership drive held the first few weeks of class, where we promoted all the benefits of ASP, sold T-shirts, and provided "goodie bags" filled with free samples from pharmaceutical manufacturers. The drive was a success, and UNC was recognized at the APhA convention by receiving a greater than 65% membership award. We seem to do a bit better with each passing year and I feel confident that 100% is just around the corner!

I could spend hours singing the praises of my peers and what they've accomplished this year, but time constraints only allow a few minutes for each project. Let me just stress that a lot of individuals were responsible and that they put forth a great deal of effort in converting them into success stories.

This year, the UNC chapter of ASP provided three screening clinics — two for alumni at their fall and spring reunions and one for students and faculty back in February to promote American Heart Month. The UNC-ASP organized and arranged the third health Professions Career Fair held in the pit on campus to expose undergraduates to health career opportunities, provided Poison Prevention and Medic Alert information to the public at local malls, and collected and bought supplies for Hurricane Hugo relief, which past President Amy Greeson and I personally delivered to Charleston, S.C. in the fall. ASP also held its annual Patient Counseling Competition and was able to send, through \$1500 raised in various sales, the winner, Sallie Faustich, to Washington, D.C. to compete nationally at the APhA convention. In addition, two Pre-Pharmacy Club gatherings were held for prospective students. The various organizations of the pharmacy school and the PCAT were discussed.

One of, if not the most popular and worthwhile programs our chapter is involved in, the drug abuse education program for elementary school children, was active again in full force this year. Over the course of the two semesters, approximately 30 of our

members visited nearly 15 schools and were able to touch the lives of 1000 kids through skits, raps, activity books and games aimed at promoting confidence, individuality, and values. Our program will also continue to expand in the following semester—thanks to the initiative of one of our members. Our chapter was one of the ten schools nationwide to receive a \$2000 Merck Student Pharmacy Project Grant this past spring, which we will use to create a puppet video for use in the schools we are unable to visit. We are really excited about this opportunity!

The UNC chapter of ASP also sponsored several professional speakers throughout the school year who provided information relative to all pharmacy students. These included Mike Zatepak of Eli Lilly who spoke on careers in industry; Bill Riddick, UNC's substance abuse counselor who revealed the five most commonly abused drugs on campus; U.S. Rep. David Price (D-NC) on current health care legislation; and an AIDS panel discussion featuring four different health-care providers from NC Memorial Hospital. Along with funding from Kappa Epsilon, we were able to donate \$230 to the AIDS Hope Fund at the hospital, in conjunction with this symposium.

Group efforts are the mainstay of our organization, but I feel a few personal accomplishments of our members should be mentioned. Mark White received a coveted APhA-Glaxo Good Government Scholarship for his work with Rep. David Price; Betsy Meade was elected Mid-Year Regional Meeting Coordinator at the 1989 meeting in Gainesville, FL for the upcoming 1990 session in Chapel Hill; Kimberly Biggs received the 5/5 Outstanding Achievement Award; and four UNC students were invited to participate in 1990 National Pharmaceutical Council Summer Industry Internships. So I'd say all in all, we have had a very productive year.

It must seem like all we do is work, but we do manage to have some fun, too. We held our annual Back-to-School Picnic the day before classes started and sponsored an End-of-the-Year Ice Cream Social, and after

Continued on page 22

WOMAN'S AUXILIARY PROMOTES POSTER FOR ILLITERATE



NCPHA President J. Frank Burton displays the Woman's Auxiliary illiteracy poster in the front window of Burton's Pharmacy in Greensboro. Staff photo.

To encourage people who can't read to ask for help when buying medication, the Woman's Auxiliary (WA) of the N.C. Pharmaceutical Association (NCPHA) recently sent educational posters to every drug store in the state.

Due to concern over the 800,000 functionally illiterate persons in North Carolina who cannot read the prescription labels on their medication containers, the WA chose to focus on the problem for its 1989-90 service project. Since these patients cannot read their prescription labels, they need special attention and counseling regarding the use of their medications. Without proper counseling, these patients are not likely to be able to comply with the therapy prescribed for them.

Consequently, the WA's president, Betsy D. Mebane, and its project chairman, Ginger Lockamy, coordinated the development of a pictogram poster to convey the message

that pharmacists are willing to help illiterate patients.

Pictograms—graphic pictures—represent an object or a thought and draw on the international geometric shapes for communicating (rectangles, triangles, and circles). Pictograms within rectangles, such as those illustrated on the WA poster, communicate information about medication use. For example, the pictogram located in the upper left corner of the poster represents prescription containers; another pictogram in the lower right corner depicts a pharmacist talking to a patient about a prescription medication and answering questions about the medication.

The idea for incorporating pictograms into the practice of pharmacy was first originated by the U.S. Pharmacopoeial Convention (USPC). A collection of pictograms concerning medication use was introduced in the 1989 edition of USPC's publication,

USP-DI, Vol. II, "Advice to the Patient," and are now available as auxiliary labels for medication containers.

In addition to pictograms, the poster features other items designed to reach foreigners and literates. For foreigners, the poster displays the international symbol for information—the lower case "i"—and the international symbol for a question—the question mark. For literates, the poster conveys the headline, "ASK YOUR PHARMACIST ABOUT MEDICINES."

The WA's illiteracy project was funded by an educational grant from Glaxo Professional Relations (Allen & Hanburys, Glaxo Dermatology, and Glaxo Pharmaceuticals, Divisions of Glaxo Inc.) The Orange County Literacy Council advised the WA on the poster design and tested it. If the poster is successful in North Carolina, the WA plans to promote it nationwide. "We're sort of a pilot here in North Carolina, so we hope it is going to work," said WA President Mebane.

Pharmacists around the state are being asked to display the posters in a visible location such as the front window of the pharmacy or near the pharmacy check-out or counseling area. In the upcoming months, WA members will be contacting pharmacists about the posters. "We're going to try to check all the drug stores in the state," Ms. Mebane said.

The poster project complements another project spearheaded by NCPHA to combat the problem of illiteracy. Through an educational grant from the Upjohn Company, the Association is developing a videotape to teach pharmacists how to identify and counsel illiterate patients.

If you did not receive a poster, please contact the NCPHA office at P.O. Box 151, Chapel Hill, NC 27514-0151; 1-800-852-7343 (in state) or (919) 967-2237. We'll send you one!

The NCPHA welcomes your comments, reactions, and ideas regarding the poster. •

THOMAS A. FULTON JR., P.D., J.D.

ATTORNEY AT LAW

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July 4, 1990

THERE'S HOPE IN GRENADA

By LeRoy D. Worley Jr.

Grenada is a small island, the most southerly of the Windward Islands which are located in the West Indies. More spice per square mile is grown on the island than any other place in the world; hence, it is often referred to as the "ISLE of SPICE."

Grenada belongs to a three-island nation which also includes Carriacou and Petit Martinique. Grenada is volcanic in origin, approximately 21 miles long and about 12 miles wide, containing rugged mountains, lush tropical rain forests, and some lovely beaches. The climate is sunny and tropical, averaging 80 degrees Fahrenheit, with two seasons—a dry season from January to May and a rainy season from June to December. The dry season has heavy rainstorms and high winds, but violent hurricane activity is rare.*

St. George's is the capital and it is located at the southwestern end of the island, with one of the most beautiful harbors in the Caribbean. The island was discovered by Christopher Columbus in 1498 at which time it was inhabited by the fierce Carib Indians, who were eventually eliminated by the French. A series of bloody wars between Britain and France followed, with the British taking final control of the island in 1783. Africans were brought in to work the plantations, and the basic population today is primarily black, with some mixed blood, a few East Indian families, and a small number of Caucasians.*

It is an English speaking nation, almost entirely Christian, with Roman Catholicism predominating. The population is approximately 100,000 and the Creole culture is derived from the African, French, and English heritage.*

The education system is modeled on the British system with children sitting for the General Certificate of Education (GCE) at "O" level, at the age of 16. The GCE syllabus is prepared and graded by Cambridge University which also prepares the advanced

level ("A" level") required for British University entrance. The "A" levels normally sit at age 18, but few students remain at school the extra two years to sit for their "A" levels.*

The Grenadian Constitution specifies a parliamentary form of government with a Governor General appointed by the Queen and an elected government headed by the Prime Minister.*

In December, 1983, just two months after the intervention of Grenada, I received a phone call from Dr. William Walsh, Founder, President and CEO of PROJECT HOPE. They were looking for someone in the Pharmacy/Administration area to join a team of specialists they were sending to Grenada. He explained that Milt Skolaut had submitted my name as a possible candidate since I had recently retired and might be available. I immediately talked it over with my wife, Peg, and we decided to take the plunge and go for three months.

That proved to be the start of an exciting part-time working relationship with a fine,



**Paraphrased from "At Home in Grenada," PROJECT HOPE. Sept., 1987.*

LeRoy D. "Lee" Werley Jr. is a former associate dean of the UNC School of Pharmacy. He was with the School for 14 years before retiring in 1982.

dedicated organization, whose primary concern is to improve the health and welfare of people everywhere. The initial contingent of HOPE personnel left on the 25th of January, 1984. Because of a previous commitment, we did not leave with this group, however, we arrived in Grenada the first week of February.

The HOPE staff consisted of 12 physicians, two dentists, one sanitary engineer, one biomedical engineer, one lab specialist, one materials manager (Pharmacy/Administration), and two administrators (one of whom was the Project Director, a physician). Within the first few weeks, the HOPE staff was busy setting up various programs in their respective specialty areas. (HOPE has a reputation of moving quickly to: 1) provide immediate medical assistance, 2) identify the problem areas, and 3) help to establish improved management systems through education and training.)

Within three months of the intervention, HOPE was in place and had identified the following general objectives:

1. Establish an effective Medical Care Program
2. Improve Sanitation and Public Health Programs
3. Establish a Biomedical Engineering Program
4. Improve the Nursing Education and Training
5. Develop a Mental Health Program
6. Develop an effective Materials Management System

Each specialty area was responsible for identifying problems of concern to the overall project and to prepare a plan of action that would provide workable solutions. It was necessary to consider the current economic situation, the role of the government in helping to optimize the health status with the existing constraints, and the cultural realities of the existing health care system. This was not always an easy task as many of us found out.

My area of concern was to develop an effective materials management system and

to improve the delivery of pharmaceuticals, medical supplies, and equipment from procurement to final disposition in the most cost effective manner. Obviously, this meant an extensive review of the current system, the facilities involved, inventories, warehouse space, records, personnel, job descriptions, policies, guides, transportation, etc.

I was assigned to work primarily with the country's Chief Pharmacist who reports directly to the Minister of Health. The Chief Pharmacist is responsible for the following:

- 1) All pharmaceuticals, medical supplies, and equipment used in all health facilities.
- 2) Pharmacy personnel assigned to health facilities, medical supply, school of pharmacy, and pharmacy inspector.
- 3) Education and training programs.

To identify problems in my area involved a site visit to each facility, which included the Central Warehouse, four hospitals, one general dispensary, six health centers, and 26 visiting stations throughout Grenada, Carriacou, and Petit Martinique. This was an education in itself and took several weeks to gather bits of information regarding their operation. Once this was accomplished, we began a systematic approach to establish priorities for our plan of action.

Priority Items

1. A New Warehouse—the old structure was rat-infested; the roof leaked; out-dated material was on the shelf; it was poorly kept; and no inventory control system existed.
2. Transportation—there was no vehicle assigned to deliver supplies and equipment to the outlying facilities—private cars were used when available.
3. National Formulary—there was no standard list of drugs to enable medical staff to prescribe effectively, avoid duplication, and reduce inventories.
4. Policies and Procedures Manual—there were no guidelines or methods for developing drug usage, records control, job responsibilities, security, and inventory levels.
5. Procurement System—items were

purchased via agents in different countries, donations, etc.—much of which was outdated and mislabeled and could not be returned.

6. Education and Training—seminars and workshops were almost nonexistent, the school curriculum lacked good management practices, and communication was lacking.

Many things were started during the first three months, but it required time, tolerance and a lot of patience to begin to make any headway.

A full-time materials manager was appointed to replace me and after 18 months he had initiated a computerized system of supply and instigated a records and inventory control system. A Regional Pharmaceutical Supply Management Project among seven Caribbean countries was established to provide pooled procurement of pharmaceuticals. This is now operating effectively and provides a regional formulary with representation from each country. The formulary is constantly reviewed by a formulary and therapeutics subcommittee of the Organization of Eastern Caribbean States (OECS) and the project is called the Eastern Caribbean Drug Service (ECDS).

In the last one and a half years, I have returned for five more consultant visits. During that time, we have moved into a new warehouse that is the finest in the Caribbean. There is a well-established delivery schedule throughout the country and an inventory control and supply system that is providing minimum inventories and cost accounting procedures. The school of pharmacy has been formalized under the Grenada National College and some coursework in materials management has been recommended in the curriculum.

During the past few years, we have seen the development of a Medical Records Program, Mental Health Program, Information and Computer Center, dedication of a new Radiology Area, and a Health Economy Program. HOPE professionals have imparted their skills to Grenadians through extensive education and training programs. This allows a smooth transition of HOPE

staff as the Grenadian counterparts take over the responsibility of the Health Care Delivery. It is at this point when PROJECT HOPE moves on to other disadvantaged countries requiring health-care needs and educational guidelines.

I have just returned from what may have been my last trip to Grenada. The new Minister of Health was interested in expanding the current distribution and supply system to include all non-medical items, and to provide policies and guidelines for the new Materials Manager position. This was accomplished during the past month and the job description and policies manual were approved and authorized. The Grenadian pharmacist selected for this position is leaving for London, England in mid-June to attend a 12-week program on Materials Management. He will assume his duties in Grenada effective October 1, 1990.

I hope to return to Grenada one of these days to see some old friends and to observe the fruits of our labor. As I look back over the past six years, the accomplishments of a well-planned PROJECT HOPE Program certainly are evident and I am pleased to have played a small role. My experience with the HOPE team has been exciting and challenging and I will continue to offer my services as long as they desire. •

KERR STEPS DOWN FROM PRESIDENCY OF N.C. MUTUAL WHOLESALE DRUG COMPANY



Banks D. Kerr

Banks D. Kerr received special recognition at the N.C. Mutual Wholesale Drug Company Annual Stockholders' Meeting on May 16, 1990. Following the Company's November meeting, Kerr resigned from the Board of Directors after serving 22 years as its president.

He was presented a framed resolution of appreciation, a special president's plaque, and was surprised with a videotape highlighting him and his family's life. A portrait has been commissioned and will be displayed at the corporate office.

Mr. Bob Bowers, Mutual's new president, reported that the company had sales of \$164.9 million during its FY 1989-90, which reflected a 10.8% increase over its FY 1988-89. Owned by its customers, Mutual returned \$24.8 million in rebates to its 419 stores. •

NOMINATIONS SOUGHT FOR 1991 APHA AWARDS

The American Pharmaceutical Association has announced that nominations are now being accepted for the following awards which will be presented at the APhA 138th Annual Meeting in New Orleans, Louisiana, March 9-13, 1991:

- Remington Honor Medal
- Hubert H. Humphrey Award
- Daniel B. Smith Award
- H.A.B. Dunning Award
- Academy of Pharmacy Practice and Management (APPM) Merit Awards

The Remington Honor Medal is one of the profession's most prestigious awards. It was established in 1918 to recognize service on behalf of pharmacy culminating in the previous year or during a long period of outstanding activity or fruitful achievement.

The Hubert H. Humphrey Award was established in 1978 to recognize members who have made major contributions in government or legislative service.

Established in 1964, the Daniel B. Smith Award is presented annually to a community pharmacist who is an exemplary practitioner and who has devoted significant time and effort to increasing the quality of life in the community.

The H.A.B. Dunning Award was established in 1983 to recognize a single contribution made by a pharmaceutical manufacturer that has assisted practicing pharmacists.

APPM Merit Awards were established in 1988 to recognize pharmacists who make one-time but significant contributions to pharmacy practice or pharmacy-related activities (e.g., a unique practice innovation, a significant public education activity, a special interprofessional project, or other singular but distinctive activity).

Nominations for these awards must be made by November 1, 1990 on official nomination forms from the APhA Awards Program, 2215 Constitution Ave., NW, Washington, DC 20037. •

COMMENTARY

ABOUT CONVENTION APATHY...

I recently attended the NCPHA 110th Annual Convention at the Sheraton Hotel & Towers in Research Triangle Park. I've lived in North Carolina for two and one-half years and this was my third NCPHA Convention. I find it a good way to meet pharmacists across the state and to learn what's happening, first hand, with our state association. Being there during committee reports and other annual reports far surpasses reading it in *The Carolina Journal of Pharmacy*! And, an added plus for attending the convention are nine hours of CE credit.

In addition to the business that has to be attended to, fun activities are always planned. The opening banquet on Wednesday evening included a lively and entertaining speaker. A tennis and golf tournament was held on Thursday afternoon with a dance—to beach music—on Thursday evening.

On Friday, approximately 50 vendors gathered in the exhibit hall, ready to share their information about changes and new developments in their company's products and also those freebies we all covet—pens, magnets, calendars, etc. This was followed by a picnic dinner at the Durham Athletic Park and an exciting baseball game between the Durham Bulls and the Winston-Salem Cubs.

I am saddened, however, by the number of people I did NOT see at the state pharmacy convention and the apparent lack of interest in our state association. The NCPHA represents pharmacists in all practice settings, whether we are retail, chain, independent, owner, employee, hospital, management, consultant, or home care pharmacists.

Next year, the NCPHA 111th Convention will be held in Winston-Salem. I hope more of you will take advantage of the opportunity to attend. The strength and power of our association and the future of our profession depends on it! I hope to see you there.

Sarah Tipton
Editor, *The Mecklenburg Minims*



AXID®

nizatidine capsules

Brief Summary. Consult the package literature for complete information.

Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chlorthalidone, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice (given up to 360 mg/kg/day, about 60 times the human dose), and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

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Minimal potential for drug interactions

Unlike cimetidine and ranitidine,¹ Axid does not inhibit the cytochrome P-450 metabolizing enzyme system.²

Swift and effective H₂-antagonist therapy

- Most patients experience pain relief with the first dose³
- Heals duodenal ulcer rapidly and effectively^{4,5}
- Dosage for adults with active duodenal ulcer is 300 mg once nightly (150 mg b.i.d. is also available)

References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20:710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
5. *Am J Gastroenterol* 1989;84:769-774.

well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

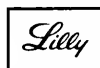
Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdose occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

PV 2098 AMP

[091289]

Additional information available to the profession on request.



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Indianapolis, Indiana
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Axid[®] (nizatidine, Lilly)

WELCOME, NEW MEMBERS!

The following persons have become new members of NCPhA since the publication of our last journal issue. They have joined more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Patricia Lynn Butler, *Raleigh*

Nelda L. Johnson, *Zebulon*

David H. Keys, *Taylorsville*

Dana E. Kiser, *Crouse*

Connie Ruth Lee, *Four Oaks*

Linda Leviton, *Hope Mills*

Gregory A. Marks, *Rockingham*

David J. Petiprin, *Grand Blanc, MI*

William Doug Poe, *Apex*

Danny Edwin Power, *Jacksonville*

Gitaben V. Vallabh, *Rockingham*

W. Scott Varner, *Albemarle*



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DICKINSON'S PHARMACY

by Jim Dickinson

Let's encourage PCS. Can you lay your prejudices aside for five minutes? Something very imaginative, and potentially very positive, is happening at big, bad PCS.

Bob Johnson, former pharmacy lion at the California Pharmacists Association, where he shone brightly for 20 years as executive vice president, is not chomping on a far tougher mouthful as chairman and chief executive officer of PCS.

That's why you should reconsider what PCS has previously meant in pharmacy, and contemplate what Bob is trying to do there.

It's early days yet, and he has to juggle new PCS corporate goals with professional development goals he has formed in very close collaboration with national pharmacy leaders, but Bob is striving to set up an interactive, patient-oriented pharmacy network.

With 45,000 PCS pharmacies already on the ReCap automated pharmacy claims, system, he's in an ideal situation to do that—and in the process to corral the managed-care herd that's been galloping into the mail-order yards.

Simply put, PCS has a bad reputation in more places than just retail pharmacy—managed-care programs blame it for encouraging unrestrained prescription waste. Mail-order sharpies have been singing a sexy tune about the endless costs of free-wheeling card programs.

Bob has to repair PCS' image in both the payer community and pharmacy.

That will take more than words and slick audio-visual sales presentations of the kind that mail-order plans pitch.

It will take deeds. Which is one reason why a lot of people are feeling a bit sorry for Bob. How can he get pharmacists to deliver measurable "value-added" services through PCS that will overcome the perceived, but false, mail order advantage of a (false) low bottom line?

Bob's working on that with all of the national pharmacy associations. In June, he announced a PCS advisory committee com-

prising as diverse and powerful a pharmacy group as you could want: APhA executive vice president, John A. Gans, NARD executive vice president, Charles M. West, NACDS president, Ronald L. Ziegler, American Drug Store vice president, Stephen Roath, practicing pharmacists, Louis Mitchell (Penns Grove, NJ) and Robert Osterhaus (Maquoketa, IA), California Health Net pharmacy director, Robert Navarro, 3PM pharmacy computer president, Thomas Cook, and Lincoln National Life Insurance Co. pharmaceuticals director, Doug Stephens.

They will tell him some things he doesn't want to hear, and he will probably tell them something of the same kind—but since when did any group of pharmacists ever agree on everything?

When Bob was criticized at NARD's Rx Expo 90 in Orlando for choosing one of the individuals on his committee, he told the critic: "We don't get anywhere just talking to ourselves—he's very interested in working with PCS."

To another critic, who wondered how he could turn things around with the sorry track record of pharmacists who won't cooperate, Bob drew loud applause when he commented: "Pharmacists have been their own worst enemies for many years!"

The cynicism of those who think that PCS can't change pharmacy habits enough to

This feature is presented on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting open discussion of professional issues in pharmacy. The Independent Voice, an 8-page practical monthly newsletter, is available from Ferdic Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in Dickinson's commentary as they are those of the author and not necessarily those of NCPHA.

make a dent in the mail-order rampage through managed care programs is understandable, based on past experience.

Since my bottom line, is me, and I'm alright, why should I give a damn about you? But there are growing signs everywhere that kind of thinking may be on the way out.

For instance, two weeks before Bob spoke in Orlando the top executives of all the nation's drug wholesalers met in Chicago for what was called a Breakthrough Meeting. With the aid of a firm of expert motivational consultants, they agreed to change their attitudes toward their customers, to become better listeners, and to see the edge of their industry's crisis not as a precipice, but as a place from which to fly.

And after Bob spoke in Orlando, NARD's national PSAO, RxNet, agreed to develop a service package that, hopefully, could give it consultancy input to PCS programs.

Perhaps PCS could market interactive, one-on-one personal pharmacy care against mail-order, providing the paper proof-of-performance that could justify paying more in order to get more?

That's something that also excites APhA, as the professional advocate in pharmacy. "Perhaps we're beginning to all talk the same language," muses APhA Executive Vice President Gans. He agrees that PCS could be the right vehicle for effective, patient-oriented DUR.

As noted, it's early days yet. But I have a sense that, with an expanded PCS customer base, all linked by ReCap or compatible systems that can eventually (sooner rather than later) report on-line drug-utilization review performance and savings from interactive personal service, mail-order's astronomical soarings will flatten.

I have a sense that high-tech, high-touch pharmacy can only be performed face-to-face, and that eventually (sooner rather than later?), everyone will agree that that's worth paying extra for.

Let's encourage PCS. (Bob didn't pay me a dime for this!) •

ASP REPORT

Continued from page 10

the ASP and APhA conventions during the day, places like Gainesville and Washington offered plenty by night to help us all relieve a little academic stress!

I think it is crucial that it be remembered that we are all vital portions of APhA and NCPHA and that we express the concerns pertinent to pharmacy, whether we are students or practicing pharmacists. One of the greatest challenges we face is motivating students to remain active in our associations after graduation. But I think we're on the right track by providing such opportunities as the regional and national conventions, projects and speakers relative to our profession, and interaction with executive officers... this spring, our student officers were actually able to meet and swap ideas with John Gans, executive vice president of APhA. This was a great experience for both parties, as we were able to compare viewpoints on several issues that will have a major impact in the years to come. As students or pharmacists, we differ by experience but become united with our profession as the common denominator. Let's work together and with these efforts we can accomplish more than either can alone. As the days of the new decade pass, the Academy of Students of Pharmacy and NCPHA can look forward to a bright future with the hopes that we both can be stronger than ever. •

OMISSION

In the July issue of *The Carolina Journal of Pharmacy* the Expense Total, \$322,231.23, was omitted from the table containing NCPHA's 1989 Statement of Income and Expense that appeared in the Finance Committee Report on page 9.

CORRESPONDENCE COURSE

COUNSELING CONSUMERS ON OTC ASPIRIN PRODUCT USE PART II: ADVERSE EFFECTS AND TOXICITY



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Goals

The goals of this lesson are to:

1. review the adverse effects and drug interactions, and toxicology of salicylates; and
2. discuss specific patient information on methods to minimize salicylate-induced toxicity and drug interactions, and how to treat these when appropriate.

Objectives

At the conclusion of this lesson, participants should be able to:

1. identify specific adverse effects and toxicologic reactions, and drugs reported to interact with salicylates;
2. demonstrate an understanding of the mechanisms that cause adverse effects and toxicity;
3. discuss the relationship between aspirin and Reyes syndrome; and
4. choose from a list, specific points for advising consumers about side effects, drug interactions, and toxicity with aspirin, and methods to best prevent or treat them.

Until the mid-1980s, aspirin was the most widely used drug in the U.S. Because of this broad use, much data have accumulated on its adverse reactions and toxicity.

Therapeutic applications were presented in Part 1 of this two-part series. This lesson reviews adverse effects and significant drug interactions reported for aspirin (Table 1). Treatment of overdose is also included.

Blood Toxicity

Aspirin occasionally causes bleeding from skin wounds, the throat following tonsillectomy, dental extraction sites, the nose, rectum, and vagina. A primary mechanism is the effect of aspirin (but not its non-acetylated derivatives) on platelet function. This results in increased bleeding time and possibly other outcomes such as fibrinolysis (destruction of the fibrin mat).

In high doses (i.e., 2 to 3 gm or more daily for several days), aspirin may cause hypoprothrombinemia. This is characterized

Table 1
Summary of Safety Considerations
with Aspirin Use*

BLOOD: Aspirin interferes with blood clotting.

CENTRAL NERVOUS SYSTEM: Taken in overdose, aspirin produces stimulation (which is often manifest as tinnitus) followed by depression of the central nervous system.

GASTROINTESTINAL TRACT: The drug may potentiate peptic ulcer and cause stomach distress or heartburn.

HYPERSENSITIVE INDIVIDUALS: Aspirin produces allergic and anaphylactic actions in hypersensitive individuals.

IRON DEFICIENCY ANEMIA: Aspirin used chronically may cause a persistent iron deficiency anemia.

KIDNEY: Aspirin may cause an increase in existing severe kidney disease.

LIVER: High doses of aspirin may produce a reversible hepatic dysfunction.

PREGNANCY: Aspirin interferes with maternal and infant blood clotting, and lengthens the duration of pregnancy and parturition.

*Although not reported for all other salicylates, similar effects can most likely be expected from them as well.

by decreased prothrombin (clotting factor II) production.

The alteration does not normally result in clinically significant changes in the coagulation mechanism, except in persons who are particularly susceptible. These include individuals receiving anticoagulant therapy, and arthritic patients who consume large doses of aspirin. Persons with liver disease, which limits the production of prothrombin, and individuals with malabsorption syndrome leading to a deficiency in vitamin K (required for prothrombin synthesis) may also be at risk.

Aspirin also increases bleeding time (time that bleeding continues after a puncture of about 1 mm in the skin). Extended bleeding time occurs with doses of aspirin far below those required for hypoprothrombinemia. For example, within two hours of ingesting 1.3 gm aspirin, a small but significant increase in bleeding time can be noted in normal subjects.

Small doses also inhibit platelet function. A 350 mg dose has been reported to increase bleeding time by approximately 3 minutes. The effect occurs because of aspirin interference with release of adenosine diphosphate (ADP) which prolongs bleeding time.

Ibuprofen also causes this same action, but to lesser extent. Salicylate salts do not have an effect.

Hemorrhage following topical application in gargle or aspirin-containing chewing gum has been noted. Hemorrhage was observed in 8 to 100 post-tonsillectomy patients who received the drug topically in the mouth and throat. Bleeding developed on the sixth or seventh post-operative day, and could be controlled only with packing and suturing. No hemorrhaging occurred in 100 patients medicated in an identical manner with acetaminophen.

It is recommended that oral aspirin product formulations which are chewed contain the following warning: "Do not take this product for at least 7 days after tonsillectomy or oral surgery, except under the advice and supervision of a doctor."

Aspirin-induced platelet dysfunction can significantly promote bleeding when the "platelet plug" is the primary factor in hemostasis. This is the usual case for oozing hemorrhage, such as that which occurs in capillary beds.

When bleeding occurs from ulcers or other areas involving extensive tissue arterials, platelet plug hemostasis is not the prime factor. This bleeding requires hemostatic mechanisms other than platelet plugs, i.e., vasoconstriction and permanent fibrin clots.

Some studies involving direct endoscopic observation of bleeding lesions have shown that bleeding occurs most often from in-

flamed mucosal tissue, which is partially denuded of surface epithelium exposing engorged, dilated capillaries in the underlying tissue.

Furthermore, elimination of platelet function alone is usually not sufficient to initiate bleeding. More information is needed on the relationship between gastrointestinal bleeding and platelet function.

Because aspirin can promote or increase bleeding, all preparations containing aspirin, regardless of formulation, must contain the following warning on their OTC labeling: "Caution, do not take this product if you have stomach distress, ulcers or bleeding problems except under the supervision of a doctor."

Central Nervous System Toxicity

Major adverse symptoms on the CNS are stimulation followed by depression. Stimulation causes various sequelae, including tinnitus (ringing, buzzing or "ocean-like" sounds in the ear), rapid breathing, confusion, unusual or bizarre behavior, vomiting, anemia, and generalized convulsions. These effects are seen in massive overdosing, and are not usual outcomes of occasional therapeutic doses of aspirin.

The first symptom of aspirin overdose is usually tinnitus. This appears when serum salicylate levels approach 20 mg/dL. However, persons with preexisting hearing loss will not experience it as plasma drug concentration increases. Salicylates may produce irreversible ototoxicity leading to permanent deafness.

Patients taking large doses of aspirin should be regularly monitored for hearing loss and tinnitus. Because this is an early and frequent indication of aspirin overdose, the following label warning on OTC products containing aspirin is warranted: "Stop taking this product if ringing in the ear or other symptoms occur."

Gastrointestinal Tract Toxicity

Aspirin induces a variety of effects on the GI tract. They range from relatively mild effects, such as stomach upset, to less fre-

quent but more serious sequelae, including mucosal erosion, ulceration or life-threatening hemorrhage. The direct and indirect effects of aspirin in causing different forms of mucosal damage are complex. There is disagreement on the interacting variables related to drug use and the pathology involved, but one concept is universally held. That is, all nonsteroidal anti-inflammatory drugs can cause gastric erosion.

Particular attention has been given to claims that adverse effects may be reduced by certain dosage forms, such as buffered tablets or effervescent solutions. Although buffering can reduce the incidence of minor effects, it will not alter more serious disorders, such as massive bleeding.

Aspirin also causes direct local irritation of the mucosal lining of the GI tract. This occurs to some degree in otherwise healthy people. Prolonged contact with aspirin produces direct damage and sloughing of surface cells. Erosion can occur on both the oral and stomach mucosae with concentrated solutions, and with particles of plain, unbuffered, or combination aspirin tablets.

Aspirin-induced, acid-mediated gastric erosion is an important factor in some adverse gastrointestinal effects. It is probably associated with increased occult bleeding following single and multiple doses of aspirin, and may contribute at least to the beginning stages of aspirin-induced gastric ulcers. It probably also is a factor in hemorrhagic erosive gastritis, directly initiated by multiple doses of aspirin.

An adverse effect of aspirin, but not acetaminophen, on the mucosal lining of the GI tract is caused by the "ion trapping" phenomenon. Absorption of unionized aspirin (an acid) from the stomach into the blood carries hydrogen ions across the cell barrier. Once inside the cell, where the pH is higher, aspirin ionizes and hydrogen ion disassociates. Hydrogen ions release vasoactive substances such as histamine from mast cells, which initiate capillary bleeding. Eventually, aspirin diffuses into the blood thereby lowering the concentration of intracellular drug, and further damage is not seen.

Gastrointestinal bleeding can be worsened in the presence of alcohol. Alcohol alone does not increase the risk of bleeding, but it can potentiate the effects of aspirin.

Although enteric coated aspirin tablets are available, there is question as to whether they effectively reduce the incidence of gastrointestinal bleeding. It is felt, especially in individuals such as the elderly who are prone to bleeding, that this dosage form of aspirin will not significantly reduce bleeding. Ion trapping occurs within the stomach wall, not the intestinal mucosa.

Once aspirin is absorbed into the blood, it can promote bleeding from all gastrointestinal sites regardless of the original product formulation. The warning: "Caution, do not take this product if you have stomach distress, ulcers or bleeding problems, except under the advice and supervision of a doctor" applies to all OTC products containing aspirin, including enteric coated products.

Hypersensitivity Reactions

It has long been recognized that aspirin causes allergic reactions in hypersensitive individuals. Respiratory effects range from shortness of breath to severe asthmatic attacks. Actions on the skin include hives, angioedema (giant hives), and rash. Anaphylactic shock involving laryngeal swelling which blocks the air passages may cause a precipitous drop in blood pressure leading to shock, and death, if not rapidly treated.

The occurrence of reactions is estimated to be about 0.2 percent of the general population. A much higher incidence is found in certain subgroups. Up to 20 percent of asthmatics, for example, are hypersensitive to aspirin. The same number is also reported to experience worsening of chronic hives. Although extremely rare, death has occurred within minutes in hypersensitive individuals following ingestion of one tablet.

Cross sensitivity with other NSAIDs is also a problem. Again, while relatively rare, there is at least one documented case of an aspirin-sensitive patient going into anaphy-

lactic shock and dying after one dose of indomethacin.

Because there is a known risk for severe aspirin hypersensitivity reactions, a FDA/OTC advisory panel concluded that high risk groups, such as asthmatics and persons with known allergic reactions to aspirin, should be warned not to ingest the drug without medical supervision. The warning statement: "This product contains aspirin. Do not take this product if you are allergic to aspirin or if you have asthma, except under the advice and supervision of a doctor" applies to these individuals.

Iron-Deficiency Anemia

Occult blood loss following aspirin is rarely of clinical significance, but prolonged use can result in greater bleeding in some patients and cause persistent iron-deficiency anemia. This has been observed primarily in adults taking antiarthritic doses of aspirin (3 or more gm daily), but it can also occur with chronic-use of lower doses. One study that measured gastrointestinal blood loss after aspirin ingestion showed that 69 percent of 35 subjects who ingested 8 tablets daily lost some blood. Seventeen percent lost more than 6 mL daily. While insignificant in normal persons, it could cause a problem in patients with bleeding tendencies or borderline iron-deficiency anemia.

Renal Toxicity

It has been suggested that aspirin damages the kidney. However, most reports expressly relate to combinations of analgesics that included phenacetin. Phenacetin is a known cause of renal damage and has been removed from the marketplace. An FDA/OTC advisory panel concluded that, although prolonged use of high doses of aspirin may cause kidney disease in rare instances, the risk is insignificant when only aspirin is involved.

The Boston Collaborative Drug Surveillance Program reported on aspirin use and renal function in over 6,400 patients. The results demonstrated no correlation between drug use and renal toxicity. Furthermore, other studies have shown that patients with

rheumatoid arthritis who take large doses of aspirin do not develop significant renal damage. Until more data are available, patients with pre-existing kidney disease should not take large doses of aspirin over a prolonged period, unless under a physician's care.

Hepatic Toxicity

Hepatic dysfunction after aspirin ingestion is characterized by increased serum levels of glutamic oxalacetic transaminase (SGOT) and glutamic pyruvate transaminase (SGPT). Hepatic toxicity has been observed in children and adults treated for systemic lupus erythematosus or rheumatoid arthritis who require moderate to large doses of aspirin over several weeks or longer.

An FDA/OTC advisory panel concluded that although prolonged use of high doses may cause hepatic damage, the effect is dose related, dependent on the disease state for which aspirin is indicated, and a function of preexisting liver disease. It therefore did not recommend a warning about it on OTC products.

Effects During Pregnancy

Aspirin ingestion during pregnancy causes various effects. Teratogenicity refers to malformation, not death of offspring. Additionally, stillbirths and neonatal deaths, length and duration of pregnancy, and parturition time (length of labor and delivery) and impairment of hemostatic mechanisms in the mother and/or infant are other potential adverse effects of aspirin.

Retrospective surveys of mothers of malformed infants suggest that aspirin taken during pregnancy can be teratogenic. Such studies are difficult to interpret because, in many cases, mothers of malformed infants also took other drugs during pregnancy. Furthermore, many women have delivered normal infants after having taken aspirin during pregnancy.

The label warning is to avoid aspirin during pregnancy is not directed at aspirin per se. Rather, it is a general statement. Women should avoid all drugs during pregnancy.

During the last two weeks of gestation, aspirin may prolong duration of pregnancy

and parturition time, and induce abnormal labor. Some women experience an increased gestation period of 1 week or more. Labor may be lengthened by 70 percent.

Aspirin may threaten newborn infants when given within 2 weeks prior to delivery. It appears to affect clotting mechanisms of the newborn by diminishing Factor XII. This is especially important since infants metabolize drugs slowly and are particularly susceptible to central nervous system hemorrhage.

Effects on Other Drugs and Disease States

Aspirin can potentiate the action of oral anticoagulants and antidiabetic drugs, interfere with uricosuric action of probenecid (Benemid) and sulfinpyrazone (Anturane),

Table 2
Significant Drug interactions
Reported for Salicylates

ALCOHOL: Increased risk of GI side effects

ALKALIZERS, URINARY: Decreased plasma level of salicylates

ANTICOAGULANTS (coumarin derivatives, heparin): Increased risk of hemorrhage

ANTI-INFLAMMATORY AGENTS (steroids, NSAIDs, etc.): Increased risk of GI side effects

INSULIN, ORAL HYPOGLYCEMICS: Effects of these agents may be increased when large doses of salicylates are taken

LAXATIVES (cellulose-containing): May bind with salicylates to reduce amount for absorption, thus, lowered plasma concentration

METHOTREXATE: May be displaced from plasma protein binding sites, and undergo reduced renal clearance; net effect is potentially toxic methotrexate blood levels

PROBENECID or SULFINPYRAZONE: Uricosuric effect of these drugs is decreased when salicylates are taken concurrently

and enhance the ulcerogenic actions of antiarthritic drugs. These and other drugs reported to react with aspirin are listed in Table 2. The warning: "Caution: Do not take this product if you are presently taking a prescription drug for anticoagulation (thinning of the blood), diabetes, gout or arthritis, except under the advice and supervision of a doctor" has been suggested.

Aspirin and Reyes Syndrome. While aspirin is safe for self-medication when used correctly, there has been controversy about whether it causes or worsens Reyes syndrome. This is a rare, rapidly developing illness that occurs in children aged 1 to 16. Early symptoms are mild, consisting of fever, upper respiratory tract infections, sore throat, cough, runny nose, diarrhea and abdominal pain. These may persist for a week to 10 days.

A second period is characterized as the "encephalitic" phase. It begins with severe, protracted vomiting that lasts from hours to a few days. The affected child may then undergo mental changes, such as listlessness, lethargy, disorientation, and occasionally, hostility when spoken to or touched. The child may appear combative, be unable to recognize family members, and advance to making constant moaning or similar sounds, muscle twitching or jerking. Consciousness deteriorates, and within a few hours, the child may be convulsing or comatose. The following label must be placed on OTC aspirin-containing products: "Warning: Children and teenagers should not use this medicine for chicken pox or flu symptoms before a doctor is consulted about Reye's syndrome, a rare but serious illness reported to be associated with aspirin."

Aspirin Poisoning

Over half of all poisonings with aspirin occur in children under the age of five. Adult toxicity generally results from chronic ingestion of large doses prescribed to treat rheumatic diseases. The majority of poisonings in children, on the other hand, are due to administration of a relatively small number of doses, given by a well-meaning parent to treat minor aches, pains and fever,

or the common cold. Children present the greatest risk of serious toxicity following poisonings.

The problem is potentiated with fever and/or dehydration. Quite often the child has a cold and is not drinking adequate fluids. A parent then gives a dose of aspirin, followed by another and another. Within several days of continuous therapy, the child's tissues become saturated with drug. At this point, serum aspirin levels increase geometrically. Before it can be realized and the aspirin discontinued, the child has been poisoned.

Another major problem occurs when a parent refers to aspirin as "candy." Later, often unattended, the "candy" becomes too much for the child to resist, and into the mouth it goes!

Mechanisms of Action. The pathophysiology of serious toxicity is explained by central stimulation with eventual uncoupling of oxidative phosphorylation within the electron transport system. Acidosis con-

Table 3
Comparison of Serum Salicylate Levels with Adverse or Toxic Effects

SALICYLATE concentration (mg/100mL)	EFFECT
20	Tinnitus, decreased hearing
25	Hepatotoxicity (liver function tests abnormal)
	Decreased renal function
30	Decreased prothrombin time
31	Hearing loss
35	Hyperventilation
>40	Metabolic acidosis

tributes to overall toxicity. Table 3 correlates serum salicylate levels with adverse effects.

Treatment of Aspirin Poisoning.

Treatment of aspirin poisoning requires emergency measures. The immediate measure is to induce emesis with ipecac syrup (after being directed to do so by a physician or poison control center) and transfer the victim to an emergency facility. Activated charcoal may be administered alternatively.

After the victim arrives at the hospital, sodium bicarbonate will be given intravenously to treat acidosis. High fever can be reduced by cold or tepid water sponging.

Consumer Advice for Aspirin Overdosage. It cannot be assumed that label directions for aspirin products are clear to all consumers. Each purchaser should understand all appropriate warning statements and know what to do in case children get into a package of the drug.

Whenever there is suspected aspirin overdosage, it should be treated as a potential emergency. If a parent suspects that poisoning has occurred, even though there are no overt symptoms, the child should be taken to a medical facility at once. •



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CORRESPONDENCE COURSE QUIZ

OTC Aspirin, Part II

1. The first warning sign of impending aspirin toxicity is most likely to be:

- a. hypoglycemia.
- b. tremors.
- c. hyperventilation.
- d. tinnitus.

2. Which of the following statements about aspirin is true?

- a. Absorption of unionized aspirin carries bicarbonate with it.
- b. Once inside gastric cells, the higher pH causes aspirin to ionize.
- c. Aspirin decreases the release of histamine from mast cells.
- d. Once aspirin diffuses into the blood, its concentration intracellularly increases, and further damages the body.

3. Based on the warning about Reye's syndrome on the labeling of aspirin-containing OTCs, the drug should not be given to children with a:

- a. bacterial infection.
- b. fungal infection.
- c. ringworm infection.
- d. viral infection.

4. Aspirin's activity is most closely associated with interference with release of:

- a. adenosine diphosphate.
- b. carbonic anhydrase.
- c. lactic dehydrogenase.
- d. monoamine oxidase.

5. Of the following, the best definition of angioedema is:

- a. extrapyramidal symptoms.
- b. giant hives.
- c. high blood pressure.
- d. variant angina.

6. The antidote given intravenously to offset changes in systemic pH caused by overdose is:

- a. ammonium chloride.
- b. atropine sulfate.
- c. ipecac.
- d. sodium bicarbonate.

7. Patients allergic to aspirin are most likely to have a cross-sensitivity to which of the following types of drugs?

- a. Acetaminophen products
- b. Nonsteroidal anti-inflammatory drugs
- c. Penicillin derivatives
- d. Sulfonamide congeners

8. Aspirin-containing products have a warning in their labeling advising against unsupervised use by patients with:

- a. glaucoma.
- b. diabetes.

- c. hypertension.
- d. peptic ulcer disease.

9. Aspirin-containing products also include a warning regarding patients with:

- a. asthma.
- b. heart disease.
- c. liver dysfunction.
- d. thyroid conditions.

10. Aspirin reportedly decreases the uricosuric effect of:

- a. acetylcysteine.
- b. allopurinol.
- c. colchicine.
- d. probenecid.

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CONTINUING PHARMACEUTICAL EDUCATION (CPE)

OTC Aspirin Product Use, Part II

- Attach a mailing label from The Carolina Journal of Pharmacy or print your name and address and mail to: CE Test, NCPHA, P.O. Box 151, Chapel Hill NC 27514.
- Completed answer sheets may be returned on a monthly or less frequent basis for grading.
- **This is a member service. Non-member tests will not be graded nor CPE credit hours given.**
- NCPHA will maintain a copy of your completed CPE tests and upon successful completion of each program, will issue a certificate for one (1) hour of Board-approved CPE credit.
- If more than two (2) questions are answered incorrectly, the test is failed. You will be given one (1) opportunity to submit a second answer sheet.

Please circle correct answer

- 1. a b c d
- 2. a b c d
- 3. a b c d

- 4. a b c d
- 5. a b c d
- 6. a b c d

- 7. a b c d
- 8. a b c d
- 9. a b c d
- 10. a b c d

Evaluation of material: Excellent Good Fair Poor

Name _____

Address _____



This column features news briefs about people and events related to pharmacy around the state. The NCPHA staff welcomes your comments and any contributions you wish to make to this column. Photos (black and white) are also welcome. Send us your news!

Deaths

William Alexander Morton of Wilmington died June 22 at 66 years of age. Morton graduated from the UNC School of Pharmacy in 1944. He practiced community pharmacy in Wilmington for 35 years, initially at Morton's Service Drug Store while being affiliated later with both Seashore Drug and Hall's Drug Store. He served in numerous positions in the New Hanover Pharmaceutical Association and has been a lifetime member of NCPHA. Morton also served on the New Hanover County Board of Health. Morton is survived by his wife, Mrs. Mary H. Morton, and his son, Dr. William Alexander Morton Jr. of Mt. Pleasant, S.C., also a pharmacist and a 1972 graduate of the UNC School of Pharmacy.

Howard Quinn Ferguson died on March 31 at the age of 86. A native of Randolph County, he was a 1924 graduate of the UNC School of Pharmacy. He was the owner-operator of Economy Drug Store in Randleman from 1933 to 1977, when he retired. Ferguson was the recipient of the UNC School of Pharmacy distinguished Service Award in 1982 and the A.H. Robins Bowl of Hygeia in 1985. He was a member of the UNC Pharmacy Foundation and NCPHA's Consolidated Loan Committee. He established scholarships in law and pharmacy at Campbell University and also scholarships in doctoral degrees at the UNC School of Pharmacy.

Louie L. Rouse, a pharmacist in Fayetteville for the last 60 years, died on May 5. He was 79. Rouse was a graduate of the UNC School of Pharmacy. For many years, he was a partner in Benders Drug Store. He was a member of the Fayetteville school board for 22 years, a past president of

Fayetteville Lions Club, and an elder emeritus and a former deacon of First Presbyterian Church.

Honors, Awards, Citations

L.M. "Mac" McCombs, long-time member and secretary-treasurer of the Traveling Members Auxiliary of NCPHA, was awarded the first Lifetime Achievement Award of the Creedmoor Chamber of Commerce at its 26th annual banquet. McCombs is a 1932 graduate of the UNC School of Pharmacy. After 35 years of employment with Eli Lilly, he retired from the company in 1973.

Edward R. Kinard Jr., owner of Kinard Drugs in Greensboro, recently was awarded the first annual Community Pharmacist Award. The award, sponsored by Physicians Health Plan (PHP) and Marion Merrell Dow Pharmaceuticals, includes a \$750 cash prize to be used for continuing education, a plaque to be displayed in the pharmacy, and recognition on a permanent trophy displayed in the PHP corporate offices. The Community Pharmacist Award recognizes outstanding professional pharmacy services to PHP members. Kinard was recognized for excellent communication with his customers, his accessibility, and his willingness to take the time to talk to his patients about their medications.

Appointments

W. Whitaker Moose, owner of Moose Professional Pharmacy in Mt. Pleasant, was elected First Vice President of NARD.

Evelyn P. Lloyd, of Lloyd's Pharmacy in Hillsborough, was appointed by the Hillsborough Town Board to the Compre-

hensive Land Use Plan Committee. Ms. Lloyd was chosen to represent public health on this nine-member committee. The committee will formulate Hillsborough's goals and policies concerning land use to the year 2010.

In The News

Bristol-Myers Squibb Co. plans to expand its plant in Morrisville, possibly adding as many as 250 jobs to the plant's 350-person work force. The first block of new employees is expected to begin working at the plant in the late autumn, as Bristol moves the first of several production lines from St. Louis to Morrisville. The plant makes such products as Excedrin, Bufferin, Datril, Congespirin, Nuprin, and NoDoz.

James L. "Jimmy" Creech of Smithfield has retired following a distinguished 52-year career. Creech owned and operated Creech's Pharmacy located in downtown Smithfield, since 1951. The store has been purchased by pharmacist, Tina S. Hobbs, who has worked at the store since 1984. Creech, a UNC School of Pharmacy graduate and the 1978 N.C. Pharmacist of the Year, has served NCPHA in many capacities through the years. He is a past president of NCPHA and the 1971 recipient of the A.H. Robins Bowl of Hygeia Award. He is also a past president of the Johnston County Drug Club and a past member of the boards of the N.C. Pharmaceutical Research Foundation and the N.C. Academy of Pharmacy. Currently, he serves on the boards of the UNC Alumni Association and the Pharmacy Foundation of N.C., Inc. Creech and his wife, Vivia, are serving on a NCPHA committee to establish a 1924 drug store at the N.C. Museum of History in Raleigh. In addition, to his pharmacy activities, Creech has been heavily involved in community affairs and was named Citizen of the Year in 1977.

John F. Watts, pharmacist at Crown Drug in Taylorsville and a 1977 graduate of the UNC School of Pharmacy, is seeking reelection in November to his second four-year term on the board of education representing District III (which consists of Ellendale, Taylorsville, and Millers). Watts



William Woodell (left), manager of Pharmacy Services at PHP presents the Community Pharmacist Award to Edward R. Kinard Jr.

is a past member of the Alexander County Chamber of Commerce and is chairman of the Alexander-Wilkes Morehead Scholarship Selection Committee.

Republican **Rep. Brad Ligon** of Salisbury will seek election in November to a sixth term in the state House of Representatives for the 35th district. Ligon, a retired pharmacist, works as a relief pharmacist at Bi-Lo. Before he was first elected to the House in 1980, he served a two-year term on the county board of commissioners.

Rusty Hamrick, President and CEO of Kendall Drug Company, recently completed the first of a three-part business program at the Harvard Business School in Cambridge, Mass. Hamrick participated with 100 other small company executives from 23 countries in the first part of the Harvard Owner/President Management Program (OPM). Finance, personnel, business control, and marketing were some of the subjects covered in the classes. The second phase of classes will convene in February, 1991, with the third and final session taking place in February, 1992.

Richard Rains, Bailey, has opened a 1,500 sq.ft. pharmacy at The Bailey Clinic. He shares office space at the clinic site with a new town physician.

Paul M. Walker of Newton, a long-time executive with the Morganton-based Cornwell Drug Company, has acquired the Cornwell Drug Store in Newton. He will operate it as Walker's Pharmacy.

Births

James O. "Joe" Brantley Jr. and Kayren Shiver Brantley announce the birth of their son, William Emmett Brantley on Friday, June 22, 1990. He weighed 8 lbs., 14 oz. Joe is a 1970 graduate of UNC School of Pharmacy and is employed by Rite Aid Pharmacy in Aberdeen. Kayren is a 1977 graduate of the UNC School of Pharmacy and owns White Star Pharmacy in Troy.

Samuel B. Burrus, a life member of NCPHA, and his wife, Mary Burrus, of Canton announce the birth of their son, Brainard M. Burrus II, born June 2, 1990. The family resides in Canton.

Weddings

Kelly O. Cauley of Kinston, a 1986 UNC School of Pharmacy graduate and Royce Z. Thrower Jr. of Greensboro were married on

August 5, 1989 at Southwood Memorial Christian Church in Kinston. Ms. Cauley is a pharmacist for Eckerd Drugs in Kinston and teaches part time at Lenoir Community College in the pharmacy technician program. Mr. Thrower is finishing his teaching certification in mathematics at East Carolina University. The couple resides in Kinston.

NCPHA Affiliates

The Third Annual **Guilford Society of Pharmacists/Glaxo Pig Pickin'** was held at the Greensboro-High Point Marriott Hotel on Sunday evening, June 10th, 1990. Attended by approximately 75 pharmacists and their guests, the evening's activities included a C.E. program, "What's New in Treating Hypertension," given by Tim Poe, Pharm.D., Manager of Drug Information, Glaxo, followed by an outstanding meal of barbequed pork and chicken and the "fixin's" provided with compliments of Glaxo/Allen & Hanburys.—J. Frank Burton, Secretary-Treasurer. •

1990 PHARMACY CALENDAR

September 11	Woman's Auxiliary Executive Board Meeting, Institute of Pharmacy
September 16	NCPHA/UNC Pharmacy Practice Seminar, Wilmington
September 18	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
September 24-25	NC Board of Pharmacy Licensure Examination, Durham Hilton
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 6	Pharmacy Fact Day (Phone-In), Charlotte, Durham, Fayetteville, Raleigh, Winston Salem
October 6-13	NC PHARMACY WEEK
October 10	Woman's Auxiliary Fall Convocation, Institute of Pharmacy
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
October 21-25	NARD Annual Convention, Nashville, Tenn.
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, Nev.

NEW IDENT-A-DRUG HANDBOOK TO IDENTIFY TABLETS AND CAPSULES

A new reference book called *Ident-A-Drug Handbook* has just been released by Pharmacist's Letter to identify tablets and capsules that do not have the name of the medication imprinted on the pill.

The *Handbook* lists the code number, dose, manufacturer, appearance, and ingredients for approximately 6,000 drug products that are not imprinted with the name of the drug. It should be useful for identifying generics, especially since an increasing number of patients are getting their medications from physicians, mail-

order firms, and other pharmacies where buying arrangements induce frequent source of supply changes resulting in the change of appearance of many medications from month to month.

Pharmacists can obtain a copy of *Ident-A-Drug Handbook* by contacting Pharmacist's Letter, 8834 Hildreth, Stockton, CA 95212, (209) 931-2923. Single copies are \$23 (all taxes and shipping are already included). Quantity discounts are available.

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PHARMACIES FOR SALE

PHARMACY FOR SALE: Don't miss an exceptional opportunity to become your own boss in a professional atmosphere. An established prescription-oriented pharmacy located in the Winston Salem area is offered for individual ownership. This opportunity will allow you the freedom to cut your hours, spend evenings, Sundays and holidays with your family and to practice your profession the way you were taught. For detailed information, call John Aumiller 1-800-325-1397.

LIVE ON THE COAST: Buy this pharmacy, including real estate for \$38,000 down. Call Walter Compton, Century 21, 4030 Arendell St., Morehead City, NC 28557, 1-800-321-5546.

COMMUNITY PHARMACIST POSITIONS

PHARMACISTS WANTED: Due to rapid growth Kerr Drug Stores now have positions available for pharmacists in Fayetteville, Charlotte, Wilson, Tarboro, Jacksonville, Morehead City and Goldsboro areas. Kerr Drug offers opportunity for growth into store management. Excellent benefits. Send resume to Jimmy Jackson, Director of Pharmacy Services, P.O. Box 61000, Raleigh, NC 27661 or call 919-872-5710.

PHARMACISTS WANTED: Revco, is actively seeking full-time pharmacists in various locations. We offer a complete benefit package including medical, dental, life, and disability insurance, tax shelter profit-sharing, savings program, Rx bonus, and continuing education. Call Recie Bomar at 704-563-5722 (collect) or mail resume to 9616 Fairmead Dr., Charlotte, NC 28213. EOE

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MISCELLANEOUS

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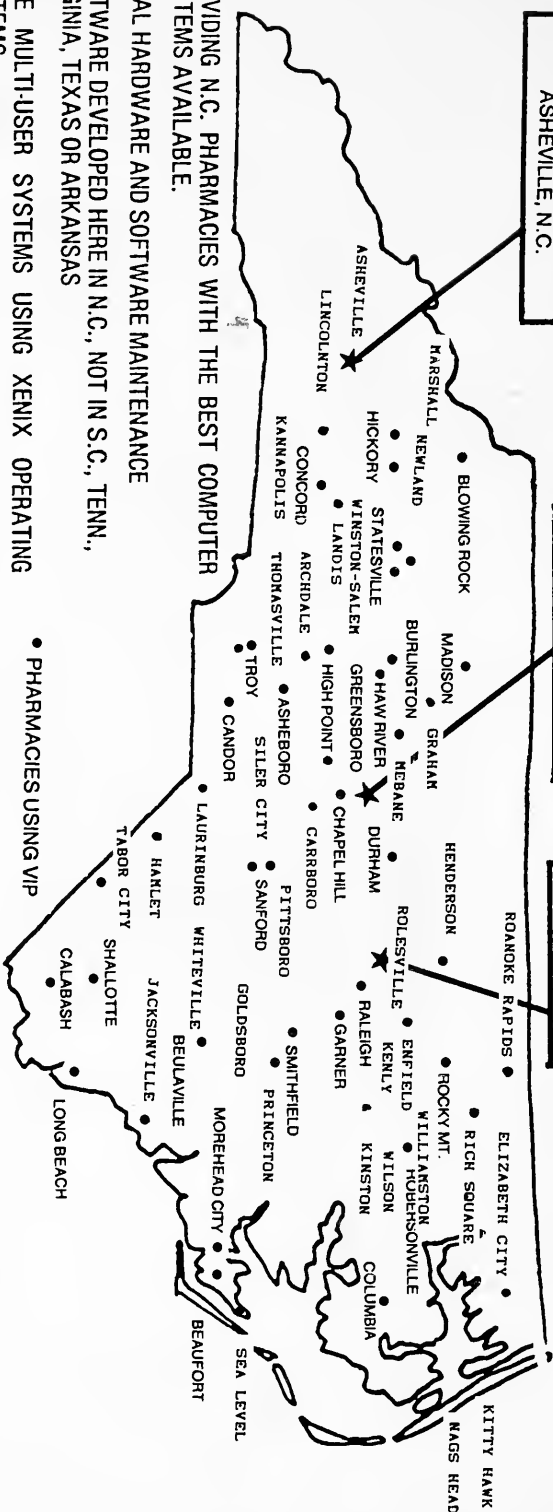
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THE CAROLINA JOURNAL OF PHARMACY

NUMBER 9

VOLUME 70

SEPTEMBER 1990

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NC PHARMACY WEEK, October 6-13, 1990

Pharmacists are urged to promote 1-800-32PHARM, the statewide medication hotline, in service on October 6, 10:00 a.m.-4:00 p.m., Pharmacy Fact Day. See pages 6 to 11—special pull-out on page 6.

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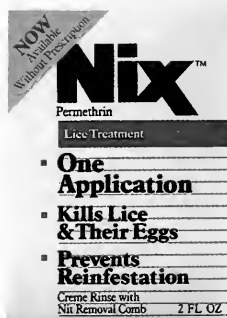
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1. Brandenburg K, Deinard AS, DiNapoli J, Englander SJ, Orthoefer J, Wagner D. 1% permethrin cream rinse vs 1% lindane shampoo in treating pediculosis capitis. *Am J Dis Child*. 1986;140:894-896.
2. Data on file, Burroughs Wellcome Co., 1990.



Rx or OTC

The best way to kill lice and nits.



THE CAROLINA JOURNAL OF PHARMACY

(USPS 091-280)

SEPTEMBER 1990

VOLUME 70

NUMBER 9

ISSN 0528-1725

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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPhA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental U.S.). Overseas rates on request. Second class postage paid at Chapel Hill, NC.



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CONTINUING EDUCATION

THE PRESIDENT'S PAGE

J. FRANK BURTON
NCPHA President



President J. Frank Burton

This month's Journal promotes North Carolina Pharmacy Week. By proclamation, Governor James Martin has designated October 6-13, 1990 as a time to recognize the important role pharmacists play as health care professionals. In his proclamation, Governor Martin states that "pharmacists are dedicated to providing information on various medicines and health matters while also counseling patients concerning proper medical care." He also urges all N.C. citizens to "consult their pharmacist concerning the proper use and application of medication for their continued health and well-being."

The joint NCPHA and NCSHP Pharmacy Week Committee has worked very hard to make 1990 Pharmacy Week a success. Many activities are planned, including the expansion of the very popular "call-in" day, this year officially named "Pharmacy Fact Day," to five major metropolitan areas of the state. In addition, newspaper, radio, and television advertisements throughout the state will promote "Pharmacy Fact Day" and the profession of pharmacy.

On Saturday, October 6th, 8:30 a.m.-10:00 a.m., guest pharmacists will appear on Joe Graedon's radio program, *The Peoples Pharmacy*, (on WUNC) to further promote the "call-in" and to discuss the pharmacist's role as a provider of health care information. Letters have also been sent to various N.C. legislators

to inform them of Governor Martin's proclamation and to make them aware of the week's activities.

By now you should have received the National Council on Patient Information and Education (NCPIE) Planning Guide and a packet of information that was mailed to all pharmacies in the state by the Pharmacy Week Committee. This packet provides very valuable information regarding ways we can best promote our profession during Pharmacy Week and year-round. Read it! Use it! Take advantage of the suggested ideas and resources.

Volunteer to help with the "call-in" in your area. Call other pharmacists and remind your colleagues of Pharmacy Week. Contact media from which you buy advertising and "urge" them to run Pharmacy Week promos. Get involved!

The theme for 1990 Pharmacy Week is "BREAK THE RX SILENCE BARRIER." Let's see if this year we can also break the "pharmacists lethargy barrier!" •

See the 1-800-32PHARM advertisement on the back of this page. Tear it out and display it in your pharmacy.

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**on
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**October 6, 1990
10:00 a.m. - 4:00 p.m.**



TALK ABOUT PRESCRIPTIONS

NC PHARMACY WEEK 1990

Bigger and Better Than Ever

The NCPHA and NCSHP have been working together in preparation for North Carolina Pharmacy Week 1990, the week-long annual observance proclaimed by Governor James Martin to promote the profession of pharmacy in North Carolina. Activities planned for this year's Pharmacy Week to be held October 6-13 have been expanded and improved.

To begin, Pharmacy Fact Day, the traditional kickoff event, has been expanded to five shopping mall locations around the state—the Eastland Mall in Charlotte, South Square Mall in Durham, Cross Creek in Fayetteville, Four Seasons Town Centre in Greensboro, and North Hills Mall in Raleigh. On Pharmacy Fact Day, Saturday, October 6, pharmacists will be encouraging the general public to talk about their medications via toll-free phone lines by calling **1-800-32PHARM**. The phone banks will be manned by pharmacists at the shopping mall locations from 10:00 a.m. to 4:00 p.m. Other pharmacists will be available to answer medication-related questions from passers-by.

Pharmacists will promote this year's theme, "BREAK THE RX SILENCE BARRIER," also the theme for the 1990 National Prescription Month in October, sponsored by the National Council on Patient Information & Education (NCPIE). The theme encourages communication between patients and pharmacists. 95% of patients are hesitant to ask about their medications, yet 72% say that they want more information. Other Pharmacy Week activities include:

- newspaper, radio, and television advertisements throughout the state to promote the profession of pharmacy

- participation by guest pharmacists on Joe Graedon's "*The Peoples Pharmacy*" radio program (WUNC) Saturday morning, October 6, from 8:30 a.m. to 10:00 a.m.

- mailings to NC legislators promoting Pharmacy Week.

At the beginning of August, a promotional kit was mailed to all pharmacies in the state. The kit included a list of ideas for Pharmacy Week, a news release which can be submitted to local newspapers, and NCPIE "Talk About Prescription Month" planning guides containing a promotional poster.

To find out what is being planned for Pharmacy Week in your part of the state and/or if you would like to participate in Pharmacy Fact Day, call the contact person from your area listed below:

Rebecca Wheeler, Co-Chairman, NCPHA
Raleigh
(919) 828-8283

Steve Fuller, Co-Chairman, NCSHP
Fayetteville
(919) 323-1152 Ext. 264

Cindy Dollar
Asheville
(704) 692-4236

Grace S. Ponzer
Cary
(919) 768-2895

Sandra H. Hak
Chapel Hill
(919) 942-8135

Andrea Fus Heath
Chapel Hill
(919) 470-4170

Leslie Mackowiak Chapel Hill (919) 681-2414	Joey Edwards Raleigh (919) 833-7558
Debbie Edwards Charlotte (704) 338-3120	Al Lockamy Jr. Raleigh (919) 848-0368
Daryl Blackburn Durham (919) 684-6773	Barry Mangum Raleigh (919) 250-8709
Kathryn Bucci Durham (919) 471-7571	Sarah B. Cobb Southern Pines (919) 692-4236
William Hudson Durham (919) 470-4170	Steve Davis Winston Salem (919) 777-3103
Byron May Durham (919) 684-5628	John Setzer Winston Salem (919) 768-2895
John Zatti Durham (919) 248-2100	James Hall Efland (919) 933-9744

Note: The following articles were adapted from the NCPIE 1990 Talk About Prescriptions Month Planning Guide.

Thanks!
to the generous support of
the Burroughs Wellcome Co.
and Glaxo Inc.,
the NCPHA is working
successfully to improve
communication between
health care professionals
and patients about
prescription medicines
during
NC Pharmacy Week 1990.

IDEAS FOR PHARMACY WEEK

- Order a free "Talk About Prescriptions Month" Planning Guide from NCPIE, 666 11th St., NW, Suite 810, Washington, DC 20001, (202) 347-6711. (Leaflets and other promotional handout materials can also be ordered from NCPIE for a small price.)
- Publicize the toll-free number, 1-800-32PHARM, for Pharmacy Fact Day, October 6, 1990, to your patients.
- Display the "Break the Rx Silence Barrier" poster in your pharmacy, hospital, library, or on a community bulletin board.
- Feature a sale on items that help assure medication compliance, such as pill cases.
- Have your mayor, city manager, or Chamber of Commerce designate October 6-13, 1990 as Pharmacy Week. Call NCPIE at (202) 347-6711 to receive a free sample proclamation. Use the signing of the proclamation as a "photo opportunity" for you, your business, or organization.
- Reproduce the "Tips for Medication Safety in the Home," (page 9 of the NCPIE planning guide), and distribute them to your patients.
- Organize a medicine information display in your pharmacy, hospital library, or hospital cafeteria.
- Speak to community groups and nursing homes and answer medication-related questions.
- Organize a "Brown Bag" prescription medicine evaluation program in your community. (See page 2 of the NCPIE planning guide for details.)
- Place "Talk About Prescriptions Month" articles from the NCPIE planning guide in your organization's publications.
- Give hospital pharmacy department tours.

IMPROVING MEDICATION USE: PHARMACISTS CAN TAKE THE LEAD

Talking about prescriptions may be old-fashioned common sense, but it's also the key to achieving all the health gains that medicines have to offer.

Why should you be interested in the National Council on Patient Information and Education Fifth Annual "Talk About Prescriptions" Month? One reason is that there is a lot to talk about. Prescription medicines are a major and growing element of modern health care and the U.S. economy.

In 1988, U.S. pharmacies dispensed 1.63 billion prescriptions, up from 1.61 billion in 1987. Americans spent an estimated \$30 billion for them, and received an average of six per person. The number and variety of medicines available to us has also grown dramatically in the past 30 years. In 1961, 656 prescription medicines were on the market; today more than four times that number are available.

Yet while these achievements in medicine development are impressive, we need to make equal progress in improving medication communication to maximize the full potential of patients' medicines.

Consumers take about half of all prescribed medicines incorrectly. Compliance specialist, R. Brian Haynes, M.D., has identified a disturbing continuum of medication-taking behavior: About one-third of patients take all of their prescribed medicine; about one-third take some; and the remaining third take none of their medicines. As a consequence, Americans do not get the full benefits of their prescription medicines. They don't control treatable chronic diseases. They don't end curable conditions promptly. They experience preventable side effects and secondary illnesses that generate unnecessary treatment costs.

Ensuring Adequate Patient Knowledge About Their Medicines

Americans are not as well-informed about prescription medicines as they need to be. In a recent consumer survey, 69% said they were not informed, or only somewhat informed, about the side effects of medication. The study

also showed that many people were inadequately informed about prescription medicines in general (72%), potential food-drug interactions (63%), and timing of doses (38%).

Knowledge gaps such as these have many causes, from the understandable tendency of sick patients to focus on the diagnosis rather than on treatment, to the provider's incorrect assumption that a patient who does not ask questions understands the instructions.

Improving the Quality of Patient- Professional Interactions

In one series of 221 patient interviews, only 19 patients said their physician had asked if they had any questions. Some said they felt intimidated and rushed by the physician's cutting them off in mid-sentence, glancing toward the hallway, or looking at their watches when the patient was speaking.

Surveys show that most people think information about prescription medicines is important, and they want more of it. This is an excellent opportunity for physicians and pharmacists to take the lead, because consumers say they trust these professionals most to give them reliable prescription medicine information.

The rapidity of new drug development makes improved communication about medicines both a greater need and a greater challenge. As medicines become even more sophisticated, consumers need to become more sophisticated in their knowledge of medicines.

Will we be ready to meet the challenges of complex medicines in the 21st century? We can be, by working this October and year-round to help patients and health care providers get smart about medicines. "Talking about prescriptions" may be old-fashioned common sense, but it's also the key to achieving all the health gains that medicines have to offer. •

PATIENT COUNSELING SKILLS

Learn From The Winners!

Could you win the National Patient Counseling Competition? This competition, sponsored by the United States Pharmacopeial Convention, Inc. and the American Pharmaceutical Association Academy of Students of Pharmacy, awards a prize each year to the pharmacy student with the best patient education interaction. The winners succeed by best exemplifying the criteria below. Rate yourself from 1 to 10 in each category to see how your counseling skills add up.

Do you...

- ✓ Properly identify yourself and the purpose of the counseling?
- ✓ Express concern for and/or interest in the patient?
- ✓ Assess patient's prior knowledge of the disease and/or treatment, and any real and/or anticipated concerns or problems which the patient has?
- ✓ Display appropriate non-verbal behaviors, voice, eye contact, and body language?
- ✓ Use language the patient can understand?
- ✓ Maintain control and direction of the medication counseling session?
- ✓ Make appropriate use of patient profile information?
- ✓ Present facts and concepts in a logical, sequential order?
- ✓ Convey complete and accurate information to the patient?
- ✓ Summarize information presented?
- ✓ Check to determine the patient's understanding?

WHAT PHARMACISTS CAN DO TO IMPROVE PATIENT COMPLIANCE

Promote Patient Knowledge and Compliance Skills

Although knowledge alone can't guarantee compliance, understanding the medication regimen and how to follow it is the foundation of good medicine practice. It is critical to explain to patients, in simple language, exactly what they are expected to do and the importance of doing it.

Unfortunately, studies show that patients forget about half the advice they get in a physician's office. Because people tend to remember best what they hear first, it is a good idea to present specific treatment responsibilities before any other information. It is also important to be organized and concise, presenting only the facts that patients need to know, and to provide written information whenever possible.

Assess Adherence

Noncompliance is not a new problem. Doctors as early as Hippocrates learned that patients often make mistakes in reporting their medicine taking. How can you assess compliance? Pharmacists can measure compliance using various "objective" methods, such as counting medicines left in the bottle and monitoring prescription renewals.

These techniques can be helpful, but it is important to interpret results with caution. For example, studies have shown a "tooth-brush" effect that can confound objective methods of measurement. Otherwise non-compliant patients often take their medication properly right before they see the doctor, just as patients brush their teeth before they visit the dentist.

Many believe that the best approaches to assessing compliance rely on good communication. Ideas include:

- Focus on adherence as soon as you dispense a medicine. Ask patients directly how well they think they will stick to the prescribed regimen. Emphasize the importance of continuing to take the medicine as prescribed.
- Talk about adherence each time you see the patient. Many will tell the truth about poor practices, which can be the first step in solving problems.
- Use a computerized system to monitor renewal patterns; call or write to patients to remind them when a renewal is due, and use the opportunity to reinforce the benefits of adherence.

Overcome Barriers to Adherence

Adherence isn't easy or automatic. Successful compliance promotion means solving the problems that get in the way. Some of the most common obstacles include:

- Patient Forgetfulness. Writing instructions down has been shown to increase adherence by 20 percent.
- Interpersonal Barriers. Many studies have shown that patient satisfaction with his or her health professional is strongly related to compliance. Yet, there are many natural barriers to easy rapport—the professional's intimidating status, unsympathetic physical settings for counseling, differences in age, race or ethnicity between pharmacists and patients, and biases developed through previous experiences.

To improve communication with patients, pharmacists can show a caring attitude by asking about patient concerns and listening attentively to their needs. Spending a little time talking about nonmedical topics helps the encounter seem less businesslike. ●

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TRAVELING MEMBER'S AUXILIARY

of

The North Carolina Pharmaceutical Association Report of the 76th Annual TMA Meeting and the TMA Foundation

The 76th Annual Traveling Member's Auxiliary (TMA) Meeting was held May 25, 1990 in conjunction with the North Carolina Pharmaceutical Association's (NCPhA's) 110th Annual Convention at the Sheraton Imperial Hotel and Towers in Research Triangle Park.

The meeting was called to order by TMA President Rudy Snow and opened with an invocation led by L.M. McCombs. Warm greetings were brought to the TMA by Betsy Mebane, president of the Women's Auxiliary of the NCPhA, and by Ralph Ashworth, president of the NCPhA. Both Ms. Mebane and Mr. Ashworth praised TMA members for their help and good work at the Convention and asked for the continued support of the TMA at future Conventions. All TMA members present enjoyed their comments.

On behalf of TMA members, President Rudy Snow extended words of thanks to the NCPhA for the plaque presented during the Opening Session of the Annual Convention, May 23, 1990, for the TMA's 75 years of service to pharmacy in North Carolina. The plaque is to be displayed at the Institute of Pharmacy in Chapel Hill upon request of the TMA.

President Rudy Snow and Secretary-Treasurer L.M. McComb conducted the Rite of the Roses ceremony in memory of deceased member, Lloyd B. Allen of Owens & Minor.

A discussion followed regarding a change in the annual dues to \$25.00, which was proposed at the fall meeting of the Officers and Board of Governors. The TMA By-Laws states that such a change has to be presented and passed or denied at the TMA Annual Meeting. A motion was made and it passed.

Life Membership was granted to those who were eligible and requested it—William H. Andrews, Justice Drug Co., Dan M. Busby,



TMA President Dick Huffman (left) of Dr. T. C. Smith Co. presents a \$2,500 check to A.H. Mebane III, Executive Director, NCPhA, to be applied to the TMA Foundation Loan Fund.

Scott and Kendall Drug Co., John Preston Hall, NC Mutual Wholesale Drug Co., James M. Paris, A.H. Robins Co., and Morris F. Powell, Bellamy Drug Co.

New 1990-91 officers were installed by William H. Andrews and President Rudy Snow presented his closing remarks. President Snow thanked everyone for their support during his term of office and turned the president's gavel over to newly installed President Dick Hoffman. President Hoffman presented a president's plaque to President Snow.

The TMA Foundation met on May 24, 1990 during the 110th NCPhA Annual Convention. A report prepared by C. Rush Hamrick Jr., Secretary & Treasurer of the TMA Foundation Fund, valued the fund at \$17,886.14. Members of the TMA Foundation agreed to contribute \$2,500 to the TMA Foundation Loan Fund of the NCPhA, to make available \$1,500 to the UNC School of Pharmacy and \$1,000 to Campbell University School of Pharmacy undergraduate students in no-interest loans. TMA members who donated to the Foundation Fund were: Rugby Lab (Mr. Jim Parker), \$200, Dick Hoffman, \$20, Bobby McDaniel, \$20, and L.M. McComb \$20. •

PHARMACY CALENDAR

1990

October 3	P21-NC Commission Meeting, Institute of Pharmacy
October 5	NCPHA Endowment Fund Dinner, Morehead House, Chapel Hill
October 6	Pharmacy Fact Day, 1-800-32PHARM statewide phone-in
October 6-13	NC PHARMACY WEEK
October 10	Woman's Auxiliary Fall Convocation, Institute of Pharmacy
October 15	Tripartite Committee Meeting, Institute of Pharmacy
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
October 21-25	NARD Annual Convention, Nashville
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, NV

1991

February 8-10	NC Leaders Forum, Mid Pines Resort
May 22-25	111th NCPHA Annual Convention, Winston Salem

THOMAS A. FULTON JR., P.D., J.D.

ATTORNEY AT LAW

IS PLEASED TO ANNOUNCE THE RELOCATION OF HIS
PRACTICE AND HIS ASSOCIATION IN THE DEFENSE OF
MATTERS RELATING TO PHARMACY AND LAW

WITH

BARRY T. WINSTON, J.D.

ATTORNEY AT LAW

106 North Columbia Street
Suite 400
Chapel Hill, North Carolina 27514
919-967-8553

Mr. Fulton's practice is limited to
matters of Pharmacy and Law

July 4, 1990

STATE BOARD OF PHARMACY

Pharmacist Members: Harold V. Day, Spruce Pine; Albert F. Lockamy Jr., Raleigh, W. Whitaker Moose, Mt. Pleasant; W.H. Randall, Lillington; Jack G. Watts, Burlington.

Public Member: William T. Biggers, Asheville.

Executive Director: David R. Work, P.O. Box 459, Carrboro, NC 27510
Telephone: 919-942-4454

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June 25, 1990

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David Marshal Agner *Cherryville*
Laurel Leigh Anderson *Greensboro*
George Marcus Anthony *Fort Mill, SC*
Donna Michelle Arthur *Morehead City*
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Karen Voitus Cody *Cary*
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Ruby Allison Crummie *Fayetteville*
Minh Tue Dang *Charlotte*
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Sherry Lynn Etheridge *Kenly*
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Continued on next page

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Carroll Lynn Graham <i>Fayetteville</i>	Linda Owens Leviton <i>Hope Mills</i>
Amanda Jo Grant <i>Leland</i>	Kathryn Louise Lewallen <i>Wilmington</i>
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Ginger Lee Hartsoe <i>Winston-Salem</i>	Tabatha McNeil <i>Charlotte</i>
William Cameron Haskett <i>Elizabeth City</i>	Catherine Williams McRae <i>Salisbury</i>
Maria Henrietta Hazucha <i>Chapel Hill</i>	Robin Barnes Michael <i>Dunn</i>
Gene Scott Henson <i>Lenoir</i>	Kristen Hunt Michallas <i>Charlotte</i>
Kristy Massie Henson <i>Lenoir</i>	Carla Dawn Miller <i>Mooresville</i>
Deborah Alis Hodge <i>Hendersonville</i>	Melissa Ann Miller <i>Wilkesboro</i>
Michele Marie Hollowell <i>Raleigh</i>	Merrill Cushing Miller III <i>Brevard</i>
Catherine Jeannette Hoyle <i>Jacksonville</i>	Geri Ellis Mills <i>Goldsboro</i>
Melinda Pons Huggins <i>Randleman</i>	Richard Franklin Mills III <i>Asheville</i>
Lisa Margaret Hunt <i>Bethel</i>	Jorge Rafael Miranda-Massari <i>Carrboro</i>
Shelley Smith Ingram <i>Durham</i>	Eileen Therese Mitchell <i>Garner</i>
Jeffrey Scott Jackson <i>Raleigh</i>	William Leonard Moore <i>Charlotte</i>
Kristie Lynn Jackson <i>Rocky Mount</i>	Joseph Stephen Moose <i>Mount Pleasant</i>
Janet Cox Johnson <i>Pinnacle</i>	Kerstin Lenore Morrell <i>Southern Pines</i>
Sheri Colleen Joiner <i>Winston-Salem</i>	Carol Ann Morris <i>Bunnlevel</i>
Carroll Kraycirik Jolly <i>Hillsborough</i>	Angela Dawn Moss <i>Hiawassee, GA</i>
Dina Kay Jones <i>Laurinburg</i>	Karen Elaine Moyers <i>Morganton</i>
Beth Anna Jordan <i>Clarkton</i>	Ginger Lee Nance <i>Charlotte</i>
Mary Diane Keisler <i>Charlotte</i>	Ut Thi Nguyen <i>Chapel Hill</i>
Timothy Patrick Keisler <i>Charlotte</i>	Susan Rene Nixon <i>Edenton</i>
David Harold Keys <i>Taylorsville</i>	Elizabeth Carol Oldham <i>Chapel Hill</i>
Angela Denise King <i>Mooresville</i>	Catherine Anne Ollice <i>Winston-Salem</i>
Christopher Todd King <i>Mooresville</i>	Donna Jean Oxendine <i>Rae ford</i>
Dana Elizabeth Kiser <i>Crouse</i>	Jenny Lynn Oxendine <i>Charlotte</i>
William Edward Koonce <i>Chadbourne</i>	Marjorie Anne Pace <i>Spring Lake</i>
Michael Paul Lamberth <i>Sylva</i>	Diana Elizabeth Payne <i>Winston-Salem</i>
Dawn Bostic Lane <i>Fayetteville</i>	Jeffrey Ray Pendergrass <i>Spruce Pine</i>
Keith Elvin Layne <i>Eden</i>	Lisa Michelle Phillips <i>Pine Level</i>
Kevin Richard Layne <i>Eden</i>	Jonathan Scott Potter <i>Reidsville</i>

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 Sabra Lynnette Quarles *Kinston*
 Kelly Jo Reinhardt *Newton*
 Amy Esther Rich *Fayetteville*
 Kathy Leigh Riley *Gastonia*
 Greg Wayne Riley *Charlotte*
 Walter Dulane Robertson *Eden*
 David Allen Rogers *Hookerton*
 William Timothy Rogers *Mulga, AL*
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 Kristen Marie Scheble *Chapel Hill*
 Beverly Sharon Schnick *Asheboro*
 Lynn Denise Seagroves *Durham*
 Lori Denise Simon *Greensboro*
 Sherry Denise Sims *Middleburg, FL*
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 Luanne Wooten *Fayetteville*
 Lori Francine Wysocki *Fayetteville*
 Douglas Montell Yoder *Winston-Salem*
 Douglas Yates Yongue Jr. *Laurinburg*

LICENSED BY RECIPROCITY

July 17, 1990

Jerome Lester Adoree *Brighton, MI*
 James Arthur Ahladas *VA Beach, VA*
 Nancy M. Allen *Raleigh*
 Gary H. Book *Maumee, OH*
 Cathy A. Britton *Jacksonville*
 Wesley G. Byerly *Winston-Salem*
 Stanley W. Carson *Chapel Hill*
 Joyce T. Folstad *Winston-Salem*
 Melanie C. George *Roanoke, VA*
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 Timothy A. Kuhn *Durham*
 Ronald H. Mamrick *Girard, OH*
 Gary R. Matzke *Chapel Hill*
 Elizabeth R. McAnally *Lexington*
 Jacqueline R. McCombs *State College, PA*
 Mary C. Nies *Carrboro*
 Pankajkumr D. Patel *Winston-Salem*
 Karen O. Petros *Chapel Hill*
 Thomas L. Pituk *Clayton*
 Clarice J. Reimer *Lynchburg, VA*
 Bonnie M. Riddle *Ypsilanti, MI*
 David G. Shipper *Benning, GA*
 Robin D. Shropshire *Rock Hill, SC*
 Frank Carson Simpson *Columbia, SC*
 Elizabeth L. Stima *Durham*
 David W. Stines *Ozone Park, NY*
 Michael S. Sutton *Henderson*
 Pam G. Taylor *Valley Head, AL*
 Joseph F. Toomey *Burr Ridge, IL*
 Jocarole C. Demas *Vass*
 Richard J. Griffin *Winston-Salem*
 Tammy S. Saxon *Goldsboro*
 Robert Horton *Welcome*

OMISSION

Our apologies for omitting **The Upjohn Company** from our list of 1990 NCPHA Convention Supporters that appeared in the July issue of *The Journal*. We would like to extend a special thanks to the company for its generosity.



AXID®

nizatidine capsules

Brief Summary. Consult the package literature for complete information.

Indications and Usage: 1. *Active duodenal ulcer*—for up to eight weeks of treatment. Most patients heal within four weeks.

2. *Maintenance therapy*—for healed duodenal ulcer patients at a reduced dosage of 150 mg h.s. The consequences of therapy with Axid for longer than one year are not known.

Contraindication: Known hypersensitivity to the drug. Use with caution in patients with hypersensitivity to other H_2 -receptor antagonists.

Precautions: *General*—1. Symptomatic response to nizatidine therapy does not preclude the presence of gastric malignancy.

2. Dosage should be reduced in patients with moderate to severe renal insufficiency.

3. In patients with normal renal function and uncomplicated hepatic dysfunction, the disposition of nizatidine is similar to that in normal subjects.

Laboratory Tests—False-positive tests for urobilinogen with Multistix® may occur during therapy.

Drug Interactions—No interactions have been observed with theophylline, chloridiazepoxide, lorazepam, lidocaine, phenytoin, and warfarin. Axid does not inhibit the cytochrome P-450 enzyme system; therefore, drug interactions mediated by inhibition of hepatic metabolism are not expected to occur. In patients given very high doses (3,900 mg) of aspirin daily, increased serum salicylate levels were seen when nizatidine, 150 mg b.i.d., was administered concurrently.

Carcinogenesis, Mutagenesis, Impairment of Fertility—A two-year oral carcinogenicity study in rats with doses as high as 500 mg/kg/day (about 80 times the recommended daily therapeutic dose) showed no evidence of a carcinogenic effect. There was a dose-related increase in the density of enterochromaffin-like (ECL) cells in the gastric oxyntic mucosa. In a two-year study in mice, there was no evidence of a

carcinogenic effect in male mice, although hyperplastic nodules of the liver were increased in the high-dose males as compared with placebo. Female mice given the high dose of Axid (2,000 mg/kg/day, about 330 times the human dose) showed marginally statistically significant increases in hepatic carcinoma and hepatic nodular hyperplasia with no numerical increase seen in any of the other dose groups. The rate of hepatic carcinoma in the high-dose animals was within the historical control limits seen for the strain of mice used. The female mice were given a dose larger than the maximum tolerated dose, as indicated by excessive (30%) weight decrement as compared with concurrent controls and evidence of mild liver injury (transaminase elevations). The occurrence of a marginal finding at high dose only in animals given an excessive and somewhat hepatotoxic dose, with no evidence of a carcinogenic effect in rats, male mice, and female mice given up to 360 mg/kg/day, about 60 times the human dose, and a negative mutagenicity battery are not considered evidence of a carcinogenic potential for Axid.

Axid was not mutagenic in a battery of tests performed to evaluate its potential genetic toxicity, including bacterial mutation tests, unscheduled DNA synthesis, sister chromatid exchange, mouse lymphoma assay, chromosome aberration tests, and a micronucleus test.

In a two-generation, perinatal and postnatal fertility study in rats, doses of nizatidine up to 650 mg/kg/day produced no adverse effects on the reproductive performance of parental animals or their progeny.

Pregnancy—Teratogenic Effects—Pregnancy Category C—Oral reproduction studies in rats at doses up to 300 times the human dose and in Dutch Belted rabbits at doses up to 55 times the human dose revealed no evidence of impaired fertility or teratogenic effect; but, at a dose equivalent to 300 times the human dose, treated rabbits had abortions, decreased number of live fetuses, and depressed fetal weights. On intravenous administration to pregnant New Zealand White rabbits, nizatidine at 20 mg/kg produced cardiac enlargement, coarctation of the aortic arch, and cutaneous edema in one fetus, and at 50 mg/kg, it produced ventricular anomaly, distended abdomen, spina bifida, hydrocephaly, and enlarged heart in one fetus. There are, however, no adequate and

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once nightly (150 mg b.i.d. is also available)**

References

1. *USP DI Update*, September/October 1988, p 120.
2. *Br J Clin Pharmacol* 1985;20:710-713.
3. Data on file, Lilly Research Laboratories.
4. *Scand J Gastroenterol* 1987;22(suppl 136):61-70.
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well-controlled studies in pregnant women. It is also not known whether nizatidine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Nizatidine should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers—Studies in lactating women have shown that 0.1% of an oral dose is secreted in human milk in proportion to plasma concentrations. Because of growth depression in pups reared by treated lactating rats, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the mother.

Pediatric Use—Safety and effectiveness in children have not been established.

Use in Elderly Patients—Healing rates in elderly patients were similar to those in younger age groups as were the rates of adverse events and laboratory test abnormalities. Age alone may not be an important factor in the disposition of nizatidine. Elderly patients may have reduced renal function.

Adverse Reactions: Clinical trials of varying durations included almost 5,000 patients. Among the more common adverse events in domestic placebo-controlled trials of over 1,900 nizatidine patients and over 1,300 on placebo, sweating (1% vs 0.2%), urticaria (0.5% vs <0.01%), and somnolence (2.4% vs 1.3%) were significantly more common with nizatidine. It was not possible to determine whether a variety of less common events was due to the drug.

Hepatic—Hepatocellular injury (elevated liver enzyme tests or alkaline phosphatase) possibly or probably related to nizatidine occurred in some patients. In some cases, there was marked elevation (>500 IU/L) in SGOT or SGPT and, in a single instance, SGPT was >2,000 IU/L. The incidence of elevated liver enzymes overall and elevations of up to three times the upper limit of normal, however, did not significantly differ from that in placebo patients. Hepatitis and jaundice have been reported. All abnormalities were reversible after discontinuation of Axid.

Cardiovascular—In clinical pharmacology studies, short episodes of asymptomatic ventricular tachycardia occurred in two individuals administered Axid and in three untreated subjects.

CNS—Rare cases of reversible mental confusion have been reported.

Endocrine—Clinical pharmacology studies and controlled clinical trials showed no evidence of antiandrogenic activity due to nizatidine. Impotence and decreased libido were reported with equal frequency by patients on nizatidine and those on placebo. Gynecomastia has been reported rarely.

Hematologic—Fatal thrombocytopenia was reported in a patient treated with nizatidine and another H₂-receptor antagonist. This patient had previously experienced thrombocytopenia while taking other drugs. Rare cases of thrombocytopenic purpura have been reported.

Integumental—Sweating and urticaria were reported significantly more frequently in nizatidine- than in placebo-treated patients. Rash and exfoliative dermatitis were also reported.

Hypersensitivity—As with other H₂-receptor antagonists, rare cases of anaphylaxis following nizatidine administration have been reported. Because cross-sensitivity among this class has been observed, H₂-receptor antagonists should not be administered to those with a history of hypersensitivity to these agents. Rare episodes of hypersensitivity reactions (eg, bronchospasm, laryngeal edema, rash, and eosinophilia) have been reported.

Other—Hyperuricemia unassociated with gout or nephrolithiasis was reported. Eosinophilia, fever, and nausea related to nizatidine have been reported.

Overdosage: Overdoses of Axid have been reported rarely. If overdosage occurs, activated charcoal, emesis, or lavage should be considered along with clinical monitoring and supportive therapy. Renal dialysis for four to six hours increased plasma clearance by approximately 84%.

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Program Participants in the Mortar-and-Pestle Award Dinner: Kay Scott, Ralph Ashworth, Frank Burton, Joe Moose, Whit Moose, Whit Moose Jr. and Harold Day.



Whit Moose Jr., left and brother Joe Moose talk to each other and the audience about growing up with the senior Moose as a role model.

Photos by Qualex

MOOSE HONORED AS 1990 PHARMACIST-OF-THE-YEAR

William Whitaker (Whit) Moose Sr. of Mount Pleasant, was recognized as the 1990 North Carolina **Pharmacist-of-the-Year** at the annual Mortar-and-Pestle Dinner held Friday night, July 27 in his home town.

Selected by the Executive Committee of the North Carolina Pharmaceutical Association, Moose was acclaimed for his civic, church and professional life which brought credit to the profession, the state and his home town. Over one-hundred and sixty pharmacists, friends and relatives from across the state attended the dinner and program. Tributes to Mr. Moose and stories of his past were given by his two pharmacist sons, Whit Jr. and Joe, Mrs. Kay Scott of Mount Pleasant and Harold Day of Spruce Pine. NCPhA President Frank Burton served as Master of Ceremonies for the dinner and program held in the Mount Pleasant Elementary School. Immediate Past President Ralph Ashworth made the presentation of

the Mortar-and-Pestle Award plaque.

President Burton, commenting on the Moose Drug Company segment of the local highway, noted there was trash that needed to be picked up. Mrs. Scott, longtime friend of the recipient and colleague on the town Board of Commissioners, said Moose was a darling little boy, with no inhibitions, who loved to wear capes as a youth, particularly Zorro's cape. She related how he had started the local Jaycee chapter and was one of two men who had been awarded life membership in the chapter.

Harold Day, a colleague on the State Board of Pharmacy, said Moose was rich in spirit and involved in the development and health care of his community. "Whit asks probing questions in Board hearings" stated Day, who declared Moose an effective Board member. Whit learned his sense of community involvement from his father and carried on the family tradition of local service, he said. With two sons now in the profes-



NCPHA Immediate Past President Ralph Ashworth presents the Mortar-and-Pestle Award to 1990 recipient W. Whitaker Moose. *Photo by Qualex*

1990 PHARMACIST-OF-THE-YEAR

sion, the Moose family was well positioned to continue this tradition into the 21st century.

Sons Joe and Whit, Jr. presented their father with a gold pocket watch and told of the evidences and experiences of love and caring they received growing up.

Mayor Ralph Austin, welcomed the out-of-town guests. Dr. Jack Crater, Minister of the St. James United Church of Christ, delivered the Invocation. Music was provided by the Bill Hanna Trio.

Moose, a past president of the North Carolina Pharmaceutical Association, was cited for his pharmacy activities and is currently serving as First Vice President of NARD. He is a past president of the Board of Pharmacy, the Piedmont Pharmaceutical Society, the Cabarrus County Pharmaceutical Society, the Mount Pleasant Lions Club and he was the charter president of the Mount Pleasant Jaycees. He has been a deacon, elder, president of the Men's Fellowship, a Sunday

School teacher, member of the choir, and the church school secretary-treasurer, as well as superintendent. A former town commissioner, Moose has been state Jaycee Vice President, a volunteer fireman, street commissioner and director of the Cabarrus Historical Society.

He is a charter director of the UNC Pharmacy Alumni Association, the NC Association of Professions, the NC Pharmacy Network and a director of NC Mutual Wholesale Drug Company. He is a Director of the NC Pharmacy Foundation and has received the A.H. Robins Bowl of Hygeia Award and serves as a preceptor for Campbell University School of Pharmacy.

In his acceptance remarks, Moose said he wanted his pharmacy friends to meet his Mount Pleasant friends and relatives and vice versa. He thanked the NCPHA for the award and all present for coming to this meaningful award ceremony. •



Previous Award Recipients, left to right; Jesse Pike, Tom Burgiss, Milton Whaley, Jimmy Creech, Jean Provo, Jack Watts, Whit Moose-1990 recipient, Bill Randall, June West, J.C. Jackson, Bob Hall, Harold Day and Ed Fuller. Photo by Qualex

DICKINSON'S PHARMACY

by Jim Dickinson

Selling out to the chains. Do chains keep gobbling up independents? If they do, whose fault is it? This summer, I got a first-hand lesson on this when my local newspaper's business section splashed a four-color spread—"McVicker's Closing; In Business 98 Years."

There, under the familiar orange-and-blue Rexall sign with nine empty bulb sockets was McVicker's owner, Irving Rider, 63, holding a package of Lydia L. Pinkham Vegetable Compound in his right hand, and Swamp Root in his left.

It was a nostalgic, well-written piece about the demise of a fine old business on High Street, Morgantown, WV, that had dispensed over 3 million prescriptions from a hand-carved, leaded-glass 19th century prescription counter imported from Austria.

The story related, as probably countless other small-town newspaper reports of pharmacy closings had related before, the founder's colorful start, and all the pharmacists who had learned their dispensing arts there while graduating from the pharmacy school at West Virginia University a few blocks up the hill.

It told of generations of patients who had been helped, like the man who tried to get something sounding like Ballsmer that a friend had recommended for a backache. Rider, since 1978 the practice's fourth owner, decided "Ballsmer" was Hanford's Balsam of Myrrh, which "isn't a fast-mover, so the chains probably don't carry it."

And so it went — a lay reporter's sympathetic outside-looking-in view of a rich heritage, a piece of Americana, that's disappearing.

I was saddened and alarmed. So I called McVicker's Rexall Drugs to see if something couldn't be done to save this fine old phar-

macy. Maybe we could find a young entrepreneurial pharmacist and make a demonstration project of our rescue.

The phone was answered by a bright female voice: "McVickers-Rite Aid." I found myself talking to Cindy Van Dyke, Rite-Aid's relief pharmacist at the store four doors up the street from McVicker's.

"Everyone takes up the independents' case," she exclaimed. "Why don't you ever get the chain's side of it?" Cindy objected to the way Rider had "bad-mouthed" chains when he had sold out to one.

Actually, apart from the side remark about chains probably not stocking Hanford's Balsam of Myrrh, the article I read had not bad-mouthed chains at all. Admittedly, it opened Rider in the following terms: "One of the major differences between old-time pharmacists and the new breed, he contends, 'is that we take care of out patients...er, customers. Most of the new ones don't even know their customers' names. They're just so many moving bodies to them.'"

Cindy was upset about the inference. She supposed Rider has sold out to the highest bidder, which was Rite Aid—but the chain would not be occupying the 98-year-old pharmacy, just taking all of its drug stock and customers four doors up the street. "Every-

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DICKINSON'S PHARMACY

thing depends on the person behind the counter," she protested. "The independent can be the impersonal one."

I knew that was true. As we talked, Cindy turned out to be ten years into her career and very high on pharmacy, working in two Rite Aid stores, and doing a lot of counseling (she interrupted our conversation several times to counsel patients on their prescription).

"Irving taught me everything I know," she said generously. That probably explained her hurt feelings about the newspaper report. She had been one of the dozens of WVU pharmacists who had interned at McVicker's.

So if Cindy loved pharmacy enough to sound off like that, what did Irving Rider have to say? Well, he had not instructed the newspaper reporter what to write; he did feel that chains don't have the time to maintain such close relationships with patients as he was relinquishing.

Yes, he did admire Cindy Van Dyke, but he had no reason to know what kind of pharmacy she was doing now. Then came the confession—but only after a lot of prodding. No, he had not tried to find another independent to come in and buy McVicker's—the "word" had been out for some time, and nobody was interested in buying the business. But, Rider admitted, he had not advertised it.

The decision to close had been "painful," he said—brought about by the deaths of four of his closest friends and by the realization that it was past time for him to ease up. While he loved pharmacy per se, he loved his regulars even more and it was losing them that hurt the most.

It was still a good business, doing about 150 prescriptions a day, with himself and Martha Hickman alternating as the duty pharmacist for 35 years. She took his decision to close the store as her cue to retire from active pharmacy practice.

Now the important part of McVicker's—its prescription drug stock and its customers—had gone to Rite Aid. The 19th century Austrian prescription counter had been bought by a new bank that was moving into a building behind McVicker's, fronting on Spruce Street.

Rider didn't know what they wanted to do with it—he guessed they were setting up a front-lobby display of some kind.

A couple of out-of-town antique dealers had bid on all the other old fittings and pharmacy specimen jars, and would be picking them up next week if somebody didn't outbid them.

As we talked, I realized that much as I could regret the emptying hole in the old High Street building that had been McVicker's, nothing would change the course of events that was robbing Morgantown of its oldest pharmacy.

Cindy and her managing pharmacist at Rite Aid, Jackie Tonkovich, regretted that aspect of the event, too. Jackie saw a silver lining—she really enjoyed dealing with McVicker's patients. "I've ordered tons of the old-time remedies since they transferred over here," she said. As she spoke, Jackie was opening newly arrived cartons of Hanford's, Willard's and Varacolate.

And as she spoke, my mind saw two faces of the love of pharmacy. One face was worn by the old independent, tired at the end of a lifetime in the profession and sadly shaking loose in a world that may be better fitted to a different kind of love. The other face belonged to enthusiastic young pharmacists, who are increasingly female and who don't need to own the business to make of it whatever they can.

They may not realize it yet, but to them also belongs something else — the challenge of showing that in the new world of pharmacy, caring is not something that's tied to owning a piece of the action.

Jackie and Cindy both make home deliveries (without being paid for it), and they have the freedom to set such policies as mailing out or sending out by cab prescriptions against payments yet to be made—and physically collecting from the occasional "deadbeat."

Inheritors of an ancient art, they're putting a new face on chain pharmacy. Once cold-shouldered at local pharmacy meetings, Cindy says her chain colleagues now fraternize easily at the monthly tri-county meetings that regularly draw up to 50 attendees. ●

CORRESPONDENCE COURSE

ADVISING CONSUMERS ON OTC EXTERNAL ANALGESIC PRODUCTS



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Goals

The goals of this lesson are to:

1. discuss skeletal muscle pain and its management with OTC external analgesic products; and
2. provide specific information to tell to consumers to insure they will use these products correctly, and to maximize overall therapy.

Objectives

At the conclusion of this lesson, participants should be able to:

1. describe basic components of skeletal muscle pain as they relate to modification with OTC external analgesics products;
2. list various classes of drugs that are used as external analgesics, and state advantages and disadvantages of each;
3. discuss the pharmacology and toxicology, precautions, contraindications, and correct methods of application of external analgesics;
4. differentiate between various product dosage forms of external analgesics; and
5. list points to convey to consumers to assure that they will benefit maximally from therapy of skeletal muscle discomfort.

Many Americans pursue sports activities

with zeal. They also perform household and gardening chores, and other activities that strain their muscles. It's no surprise then that they develop skeletal muscle aches and pains.

Most skeletal muscle discomfort is usually mild and short-lived. Occasionally, symptoms suggest more serious pathology. Pharmacists may be asked to counsel on such discomfort and suggest treatment.

This lesson reviews the pathology of skeletal muscle pain. It describes OTC drug products that are used as external analgesics, and lists actions and limitations for their use. It also presents information to convey to consumers to maximize the correct use of these products.

Muscle Pain

When one considers the large surface area of skeletal muscle in the body, it is easy to understand why muscle pain is so common. Pain receptors located throughout skeletal muscle are stimulated by strenuous exercise or other trauma. Pain impulses are transmitted to the brain where they are interpreted as muscle pain.

Pain can also develop following prolonged periods of inactivity, such as driving for ex-

Table 1

Representative OTC external analgesic products

<i>Product</i>	<i>Form</i>	<i>Ingredient(s) *</i>							
		ME	CA	MS	TS	MN	CP	HD	
Absorbine Arthritic	Lotion	x		x		x			
Analbalm	Lotion	x	x	x					
Analgesic Balm	Ointment	x		x					
Aspercreme	Lotion	x			x				
	Cream								
Banalg	Lotion	x	x	x					
Banalg Hospital Str.	Lotion	x		x					
Ben-Gay	Lotion, Gel	x		x					
Counterpain Rub	Ointment	x		x					
Dencorub	Cream	x	x	x					
Doan's Rub	Cream	x		x					
Emul-O-Balm	Lotion	x	x	x					
Exocaine Odor Free	Cream				x				
Exocaine Plus Rub	Ointment			x					
Heet	Lotion		x	x			x		
Icy Hot	Balm, Rub	x		x					
Infra-Rub	Cream	x		x					
Mentholatum	Cream, Rub	x	x						
Minit-Rub	Ointment	x		x					
Musterole Deep Str.	Ointment	x		x		x			
Musterole Regular	Ointment	x	x						
Myoflex	Cream				x				
Omega Oil	Liniment			x		x	x	x	
Panalgesic	Lotion	x	x	x					
Pronto Gel	Gel	x	x	x		x			
Rid-A-Pain	Liniment			x		x			
Sloans	Liniment		x	x			x		
Soltice Quick Rub	Cream	x	x	x					
Sportscreme	Cream				x				
ThermoRub	Ointment					x	x	x	
Zostrix	Cream						x		

*ME = Menthol;CA = Camphor; MS = Methyl salicylate; TS = Triethanolamine salicylate; MN = Methyl nicotinate; CP = Capsicum oleoresin or Capsaicin; HD = Histamine dihydrochloride

tended periods. Poor posture, and bending and/or lifting awkward or heavy objects can cause it. Muscle pain can also follow periods of dampness and/or cold, rapid temperature changes and air currents. When injury is severe, skeletal muscles can become stiff and sore, and difficult and painful to move.

Delayed muscle soreness differs somewhat from other more acute pain and chronic in-

flammation. The former usually occurs a day or two after injury or abuse.

Muscle pain is difficult to describe, and even harder for health care professionals to accurately interpret. It is highly individualized and subjective. It is almost impossible to describe to others in terms that the listener can interpret in like manner. Deep-seated pain originating in skeletal muscles is often described as "dull"

or "achy," and its locus is usually hard to pinpoint.

The way people experience pain is, for the most part, acquired rather than inborn. People react to painful stimuli based on previous experiences. Each person learns to react in specific ways to each type of stimulation.

In almost every instance, pain is associated with psychological and emotional factors, and is invariably associated with anxiety. Therefore, the placebo effect can not be disregarded. The fact that something is being done to relieve pain (i.e., in the case of external analgesic products, rubbing a product on the skin) contributes greatly to the therapeutic effect of the medication used. This placebo effect is magnified when the agent has a characteristic "medicinal" odor.

External Analgesics/Rubs

External analgesics are agents that are applied to the skin to relieve pain. For purposes of this lesson, discussion will include products and ingredients that soothe sore muscles, tendons, ligaments, and bursa. Agents such as local anesthetics and skin protectants, which are also external analgesics, will be discussed another time. Representative examples of commercially available products are shown in Table 1.

Counterirritants. The practice of voluntarily producing mild pain or other neural sensation to counter a more intense one is instinctive. Pain sufferers bite their lips, clench their fists, hit themselves vigorously, massage skin areas, or dig their nails into their palms in order to reduce perception of more intense pain. Counterirritants are medicinals which are applied to the site of pain for the same reason.

Most counterirritants produce a mild, localized inflammatory reaction. The objective is to provide analgesic relief to another area of the body, generally within the deeper tissues of muscle. The overall intensity of response is dependent on the specific counterirritant and its concentration, vehicle used, and period of contact with the skin.

Though there is no unanimity of opinion, several theories have been advanced to explain their pharmacologic action. One such theory is described as the "summation of pain stimuli." The thesis is based on belief that counterirri-

tants stimulate the skin's receptors by inducing classical signs of inflammation (i.e., heat, erythema, pain, and swelling). The theory continues that these overwhelm the painful stimuli originating elsewhere in the affected muscle. In some respect, counterirritation is likened to acupuncture.

The theory makes some sense from a physiologic standpoint. Stimuli emanating in skeletal muscle travels along nerve fibers in a common pathway with impulses from the skin. Both impulses are referred to the same area of the spinal cord for transport to the brain. By increasing dermal sensation, the individual's perception of muscle pain can be completely obliterated.

Certain counterirritants also have rubefacient action. This means they cause a reactive vasodilation of cutaneous blood vessels which brings more blood to the area. This, in turn, increases dermal temperature, which results in a feeling of warmth and comfort.

Counterirritants have been evaluated for safety and efficacy by panels of experts who reported their findings to FDA. Table 2 lists ingredients that meet both these criteria, and are therefore available in OTC external analgesic products. They are subgrouped into four chemical and/or pharmacologic groups that provide qualitatively different types of irritation. In addition, numerous other agents are still used in OTC products because they have some, but inconclusive, evidence of safety and effectiveness. These latter ingredients can remain on the market until manufacturers complete their clinical studies.

The more potent counterirritants include those listed in Group A. They are strong irritants that cause redness and warmth at the site of application. Group B counterirritants provide cooling and/or warmth, and a tingling sensation to the skin. Their overall response may be partly due to placebo action, because their odors are strongly suggestive of pain relief. Group C substances are vasodilators. Group D contains capsaicin derivatives. The latter substances reportedly provide counterirritant activity that is often as great as Group A, but without rubefacient properties.

While the exact mechanism of capsaicin derivatives such as aspirin has not been determined, a popular theory is that they block pain signals from the periphery to the CNS. This

Table 2

Safe and Effective Counterirritants

<i>Group</i>	<i>Characteristics</i>	<i>Ingredients</i>	<i>Concentrations</i>
A	Induce redness and irritation. More potent than other commonly used counterirritants	Allyl isothiocyanate Ammonia water Methyl salicylate Turpentine oil	0.5–5% 1–2.5% 10–60% 6–50%
B	Produce cooling sensation. Have strong organoleptic properties	Camphor Menthol	3–11% 1.25–16%
C	Cause vasodilation	Histamine dihydro- chloride Methyl nicotinate	0.025–0.10% 0.25–1%
D	Incite irritation without rubefaction. Equal in potency to Group A ingredients	Capsaicin Capsicum Capsicum oleoresin	0.025–0.25% 0.025–0.25% 0.025–0.25%

theory continues that a neurotransmitter called "Substance P" is responsible for relaying pain messages along nerve fibers to the brain. Capsicum derivatives are thought to stimulate the release of Substance P, then deplete its availability and prevent synthesis. This, then, obliterates pain impulses. Some products containing aspirin are also promoted for relief of pain associated with herpes infection.

Combination Products

FDA considers it to be therapeutically rational to combine two or more active ingredients to produce a desired outcome. Manufacturers of external analgesic products can mix up to four ingredients, provided that each counterirritant belongs to a different group listed in Table 2. However, it is considered to be irrational to combine counterirritants with topical analgesics or antipruritics, local anesthetics, or skin protectants. These other drug product ingredients could oppose and even nullify the desired irritation that is beneficially produced by the counterirritant.

Some ingredients may act as counterirritant in one concentration, and in reduced concentration, as analgesic. To illustrate, in concentrations greater than 1.25 percent, menthol excites sensory receptors by counterirritant action. In concentrations less than 1.0 percent,

it directly depresses cutaneous pain receptors and thereby exerts topical anesthetic properties similar to phenol and other alcohols. Certain esters of salicylic acid also exhibit similar activity.

Other External Analgesic Product Ingredients. Other drugs have also demonstrated safety, but have not yet proven efficacy as external analgesics. As explained earlier, they are still employed in a number of OTC external analgesic products.

Aspirin is the most widely used, safe and effective internal analgesic in the U.S. Applied topically, it is neither irritant nor counterirritant. Benefit derived from external application is due to absorption and systemic distribution in the same manner as following oral administration. The exact mechanism by which aspirin produces analgesic action is not known. It is generally conceded that it works in part by anti-inflammatory action peripherally, probably by interfering with synthesis of prostaglandins, and by depressant effect centrally. While concentrations of 5 to 6 percent have been used in OTC preparations for topical application, there is little evidence that such doses are effective.

Eucalyptus oil and one of its major ingredients, eucalyptol, are counterirritants and rubefacients. Like other essential oils, euca-

lyptus oil has a characteristic "medicinal" odor. It is also an irritant and rubefacient that is said to cause a sensation of warmth followed by mild anesthesia. Although used in concentration ranging from 0.5 to 3 percent, there are insufficient data to support effectiveness of such strengths. It may remain in OTC products for its odor, but not be claimed to have therapeutic effects.

Triethanolamine salicylate (trolamine salicylate) is an ester produced by interaction of equal amounts of triethanolamine and salicylic acid. It is used in 5 to 10 percent concentrations.

Triethanolamine salicylate is believed to act by inhibiting prostaglandin formation peripherally, and to lesser extent, centrally. Though known to be absorbed from the skin, there is scant evidence to show the extent, and no significant analgesic or anesthetic activity has been demonstrated.

Safety of External Analgesics

Absorption of external analgesic product ingredients through the skin is minimal when the products are used as directed. They are, therefore, safe. If swallowed, however, they may be extremely toxic. They should be kept out of the reach of children.

Excessive rubbing, bandaging tightly to occlude the area of application, or exposure to heat or sunlight following application of an external analgesic product may incite severe skin damage with blistering. Susceptible persons may also be sensitive to the ingredients. The resultant rash created by allergic sensitization is difficult to distinguish from redness caused by excessive rubbing. Therefore, if a rash or irritation appears, the product should be immediately discontinued and the area washed and rinsed thoroughly.

Persons sensitive to aspirin may react adversely to methyl salicylate. The reaction is uncommon. Such persons should still be cautioned to avoid products containing methyl salicylate.

Vehicles and Product Dosage Forms

The vehicle is important to the overall action of external analgesic products. Since it is undesirable for them to be absorbed systemically, the vehicle should limit transdermal absorption.

Creams. Creams are generally water-soluble bases that can be rubbed onto the skin without leaving an oily residue. Cream dosage forms for counterirritants are rare, possibly because they don't "feel" right for this purpose. A few available products are promoted as "greaseless" formulations.

Liniments. Characterized as mixtures of drugs in alcoholic solutions of soaps, emulsions, or oils, liniments can be applied with rubbing. Oleaginous based products are less irritating to the skin than alcoholic products and are specifically intended for application with massage. Alcoholic or hydro-alcoholic-based liniment products are intended for applying counterirritants or rubefacients, without excessive massage or prolonged exposure to heat. Liniments are well accepted for use as a vehicle for counterirritants. They should not be applied to broken or bruised skin.

Lotions. Dispersions or suspensions of drugs in alcoholic or aqueous media, lotions are often emulsions. Following application, they dry quickly. Lotions are intended for use over widespread areas. They are especially suited for hairy areas of the body since they easily penetrate down to the skin surface.

Ointments. Ointments are semisolid preparations intended for application to skin and mucous membranes. They are widely used as a counterirritant vehicle due to consumer acceptance of their texture. They are especially advantageous as vehicles for counterirritants which are to be applied with massage. Ointments leave an oily residue after application, which adds to the belief that they are "good."

Gels. Gels (jellies) permit quick penetration of ingredients into skin and hair follicles, and provide a greater sensation of warmth than products formulated as creams, liniments or ointments. Again, while popular vehicles for other topical formulations, gels are not common with OTC external analgesics.

Gel-based products should not be used excessively. They must be applied cautiously, and not rubbed in vigorously. To do so may cause excessive dermal irritation and burning.

Heat and Massage

In addition to counterirritants and rubefacient drugs, heat and/or massage alone are

alternative therapies that may also provide relief from skeletal muscle pain. Heat produces analgesia by elevating the pain threshold of peripheral nerve fibers. Heat is also a muscle relaxant both locally and centrally, via the power of suggestion. It can be applied with a hot water bottle, electric heating pad, or as a moist heat compress. The latter is considered the most effective method of application.

Heat also benefits muscle pain because it helps restore elasticity to collagen. Collagen is the most abundant protein in humans and a basic building constituent of tendons, ligaments, and muscles. Collagen normally stretches like a coil with work or exercise, and recoils to normal length after stretching. If injured by excessive stretching or injury, it does not return to its previous lengths thus causing discomfort.

Heat and massage increase both blood and lymph flow in the skin and underlying structures. This enhances oxygen and nutrient delivery, and removal of metabolic waste products.

In fact, a possible benefit of OTC external analgesic products may be that they are applied with rubbing and massage. This physical action may impart some benefit. Unfortunately, studies comparing massage with topically applied products are nonexistent. It is almost impossible to conduct controlled, objective investigations on comparative effectiveness of massage techniques.

Counseling Consumers

Skeletal muscle pain associated with strains is characteristically described as dull and aching. If the pain is intense and reported as sharp and/or jabbing or by other descriptions, the individual should be referred to a physician. Likewise, pain in or near a joint may reflect fractured or torn ligaments or tendons, or arthritis. To apply OTC external analgesic products may only delay an accurate diagnosis, and accentuate damage.

Symptoms that persist beyond 7 days may signal that an underlying condition or disease is present that requires a physician's diagnosis and treatment. To continue self-treatment beyond 7 days may delay proper treatment and exacerbate the condition.

Once a pharmacist is assured that the affliction is minor and related to a specific benign

injury, self-medication with an OTC external analgesic product can be recommended. External analgesics provide temporary relief, but are not curative.

It is common practice as a part of athletic training procedures to apply counterirritants, then cover with a bandage to either protect clothing, or to increase activity of the drug. It is desirable to protect clothing. There are also no current data to substantiate that risk of adverse reactions to counterirritants is increased when the application site is lightly covered. With occlusive dressings, however, there is increased risk for irritation and blistering, and they should be avoided when using counterirritants. •



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CORRESPONDENCE COURSE QUIZ

External Analgesic Products

1. Which of the following is reported to be the most potent (i.e., listed in Group A) counterirritant?

- a. Camphor
- b. Histamine
- c. Menthol
- d. Methyl salicylate

2. The activity of capsicum derivatives is reported to be due to its depleting availability and synthesis of:

- a. endorphins.
- b. norepinephrine.
- c. substance P.
- d. vitamin C.

3. The most abundant protein in humans, which is the basic building constituent of tendons, ligaments, and muscle is:

- a. collagen.
- b. elastin.
- c. gamma globulin.
- d. purine.

4. The activity of counterirritants is most associated with:

- a. anesthetizing pain receptors.
- b. central reduction of receptor pain impulses.
- c. mild localized inflammation.
- d. referring pain to a distant part of the body.

5. Products containing which of the following ingredients are promoted for relief of pain associated with herpes infection?

- a. Methyl nicotinate
- b. Capsaicin
- c. Methyl salicylate
- d. Histamine

6. All of the following statements are true EXCEPT:

- a. application of heat produces analgesia by elevating the pain threshold of peripheral nerve fibers.
- b. application of moist heat is considered to be more efficient than dry heat.
- c. application of heat produces muscle relaxation both locally and centrally.
- d. application of moist heat is indicated in treating circulatory disturbances such as peripheral vascular disease.

7. All of the following statements about pain are true EXCEPT:

- a. reaction to pain is largely inborn rather than acquired.
- b. each person has his own psychological threshold for pain.
- c. pain is associated with emotional factors.
- d. pain is invariably associated with anxiety.

8. Which of the following incites irritation without being rubefacient?

- a. Allyl isothiocyanate
- b. Capsaicin
- c. Histamine
- d. Methyl salicylate

9. Which of the following vehicles is reported to provide greater warmth on application than the others?

- a. Cream
- b. Gel
- c. Liniment
- d. Ointment

10. A customer known to be hypersensitive to camphor and menthol should be advised not to apply which of the following products?

- a. Exocaine
- b. Musterole
- c. Omega oil
- d. ThermoRub

See Next Page For CE Answer Form

1990 Endowment Fund Dinner and Program

The Fourth Annual Endowment Fund Dinner will be held Friday night, October 5 in the elegant State Dining Room of the Morehead House in Chapel Hill. Featured speaker is the Honorable Richard A. Gephardt, congressman from Missouri and House of Representatives Majority Leader. Sponsored by the North Carolina Pharmaceutical Association Endowment Fund, Inc., the Dinner is the major source of income for the Endowment Fund which provides scholarships and funds for special projects of the NCPhA and maintenance of the Institute of Pharmacy. Invitations have been mailed, but call if you wish to attend and have not received your notice. Space is truly limited.

WELCOME, NEW MEMBERS!

The following pharmacists have become new members of NCPHA since the publication of our last journal issue. They have joined more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Carroll K. Jolly, *Hillsborough*

Lisa M. Phillips, *Pine Level*

Laury Anderson, *Greensboro*

Cathy A. Britton, *Jacksonville*

David Broome, *Wilson*

Sherry L. Etheridge, *Kenly*

Hugh D. Gassaway, *Greenville*

Lynn Graham, *Chapel Hill*

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Melinda P. Huggins, *Randleman*

Joseph Moose, *Mt. Pleasant*

Kathy Riley, *Gastonia*

Seymour P. Rubin, *Newport*

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Please circle correct answer

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2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

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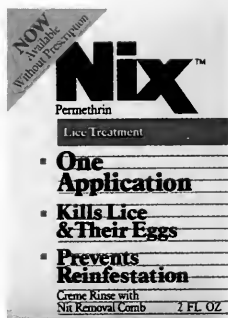
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1. Brandenburg K, Deinard AS, DiNapoli J, Englander SJ, Orthoefer J, Wagner D. 1% permethrin cream rinse vs 1% lindane shampoo in treating pediculosis capitis. *Am J Dis Child*. 1986;140:894-896.
2. Data on file, Burroughs Wellcome Co., 1990.



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(USPS 091-280)

OCTOBER 1990

VOLUME 70

NUMBER 10

ISSN 0528-1725

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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental U.S.). Overseas rates on request. Second class postage paid at Chapel Hill, NC.

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THE PRESIDENT'S PAGE

J. FRANK BURTON
NCPHA President

NCPHA Committees: Are They Important?



I recently had the privilege of bringing greetings from the North Carolina Pharmaceutical Association to the assembled students of Campbell University School of Pharmacy at the annual Convocation which begins their academic year.

Those of us who were invited to speak to this impressive assemblage of aspiring pharmacists generally brought the same message: the opportunities and challenges in pharmacy have never been greater, and their chosen profession will be what they want to make of it! But the key word I wanted to stress to these future colleagues was *involvement*. I urged them to get involved in their school, their profession, and their community; for in doing so they would find the rewards of being a *participant* much more fulfilling than suffering the consequences of being a *bystander*!

This brings me to the subject I want to address this month—NCPHA committee participation.

The activities of our committees should be and are the major source of suggestions, recommendations, resolutions, and reports that guide the NCPHA in planning and policy-making. Questions and topics first raised in committees eventually lead to official position statements, legislative initiatives, and other changes in what NCPHA stands for and does that can ultimately have a real effect on your

practice of pharmacy. As our Executive Director Al Mebane stated in his letter notifying NCPHA members of their assignments, "committee work is where it's at in Association involvement."

This month's journal lists all the NCPHA committees and their members for 1990-91. We made every effort to honor members' requests by assigning them to their first or second choice of committees. (Several committees are restricted in size by our Constitution and Bylaws, so it was not possible to give everyone their first choice.)

I have asked each committee chairman to have a minimum of two meetings, the first of which is to be held before the end of November. Each committee member should be prepared for that first meeting by making a list of issues and positions you would like to see your committee address.

If you did not return your committee sign-up sheet to the NCPHA office, you may still become a part of this important process by calling Al or me as soon as possible and we will add your name to this list of NCPHA members who have answered this call to be *participants* rather than *bystanders*. •

THANK YOU!

Thanks to all who returned a Convention Survey to the NCPHA office! Your responses will greatly assist us in planning for future NCPHA conventions. A summary of the survey results will be published in the months ahead. The NCPHA Staff is working harder to serve you better. Thanks for your help!

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JCPP HOLDS QUARTERLY MEETING

Legislative, Professional Issues Dominate

The Joint Commission of Pharmacy Practitioners (JCPP) held its regularly scheduled quarterly meeting on Thursday, August 23, 1990. John A. Gans, Executive Vice President, American Pharmaceutical Association served as Chairman for the meeting.

The JCPP received reports on activities recently conducted by member organizations on the following issues:

- the revision process for the Model Pharmacy Practice Act;
- approval process for generic drug products;
- return goods policies for pharmaceutical manufacturers;
- one symbol for pharmacy;
- proposed mission statements for pharmacy, pharmacy practitioners and pharmacy education;
- health insurance for association employees;
- and the American College of Pharmaceutical Education's (ACPE's) Declaration of Intent. (ACPE's Declaration of Intent includes a revision of pharmacy education accreditation standards which focuses on a doctor of pharmacy degree program as the only professional degree program evaluated and accredited. This new direction may become adopted as soon as the year 2000.)

The JCPP discussed several recommendations developed by a JCPP Subcommittee to strengthen the relationship between pharmacy and medicine, and effectively utilize supportive personnel in pharmacy. After discussing several suggestions developed at the Conference on Pharmacy in the 21st Century II, the JCPP decided to support a similar activity every five years with Pharmacy in the 21st Century III tentatively scheduled for 1994.

JCPP members discussed the Pharmaceuticals Access and Prudent Purchasing Act of 1990 (S. 2605) and the distribution system

currently utilized by Sandoz for Clozaril. Recent exchanges of correspondence and the results of discussions held with officials from several other health care organizations, officials from Sandoz, and among JCPP members were reviewed.

Several books, newsletters, journals, and other educational materials were distributed so that member organizations could more effectively serve pharmacy practitioners and coordinate future projects.

The next JCPP meeting was scheduled for November 27, 1990, with Timothy Webster, Executive Director, American Society of Consultant Pharmacists, serving as Chairman for the meeting.

JCPP member organizations include: American Association of Colleges of Pharmacy, American College of Apothecaries, American College of Clinical Pharmacy, American Pharmaceutical Association, American Society of Consultant Pharmacists, American Society of Hospital Pharmacists, NARD, National Association of Chain Drug Stores, and the National Council of State Pharmaceutical Association Executives.

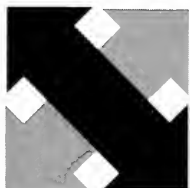
Chief executive officers and staff of JCPP's member organizations meet quarterly to discuss professional issues of mutual interest and to maintain an open dialogue. •

MERCK CHANGES NAME OF LOSEC®

Because of potentially dangerous name-related errors involving LASIX® and LOSEC, Merck announced the change in name of LOSEC to PROLOSEC®, effective immediately. Merck is asking pharmacists to continue dispensing LOSEC, recognizing the replacement product will be PROLOSEC. The Medicaid program computers will recognize either LOSEC or PROLOSEC as the Merck product, Omeprazole. Merck is notifying pharmacists and physicians of this change. •



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CONTINUING EDUCATION

DICKINSON'S PHARMACY

by Jim Dickinson

They told the city's insurance consultant that even if independents could meet chain prices and computer capabilities, it "would not be good business" to jeopardize the chain discounts they received by opening their exclusive contracts to independents.

Self-help, the only help. There used to be a song with the cute little refrain, "You gotta do, do, do it yourself, if you wanna get anything done."

Faced with lock-out HMO contracts that would take one-fourth of his business to selected chain drug outlets in his city, Louisiana pharmacist John Bull did just what the song said.

He had to. None of his city's other independents were interested, as their market share had already eroded under the onslaught of major drug chains and Louisiana's economic recession.

John Bull Pharmacy at 2124 38th Street, in Kenner (pop. 70,000) had thus become something of a special case—the last prosperous independent in town. When the city fathers voted to contain the runaway costs of their employee benefits program by handing it over to three health maintenance organizations, nobody realized until too late that that would mean exclusion of John Bull Pharmacy.

The three HMO's—Ochsner (a local hospital-based outfit), Maxicare and Cigna—had all signed exclusive contracts with various chains. They told the city's insurance consultant that even if independents could meet chain prices and computer capabilities, it "would not be good business" to jeopardize the chain discounts they received by opening their exclusive contracts to independents.

Signing himself "The Pharmacist You Can Talk To," Bull used his word processor to craft the following skillful letter for all city employees (he figured they brought him 400 prescriptions a month):

"Due to medical restriction on your new choices for medical benefits, I will no longer be able to serve your family as your personal pharmacist...

"This is America, where freedom of choice is the hallmark of society, a basic American right. The alternative would be socialized

medical managed care. This is what concerns me the most. Your family doctors, community hospitals, and your neighborhood pharmacy could be a thing of the past.

"I ask that you support me in establishing a freedom of choice from a grass roots effort, where the employees have the freedom of choice of any provider. This includes all pharmacies as long as the provider meets all the reimbursement conditions imposed by the HMO...

"As you might already know, I am the only delivery pharmacy in Kenner, so many retirees and working families will have no means of transportation. All compounded prescriptions and drugs to be used in your medical therapy will be restricted. In conclusion, when physicians and nurses aren't accessible to answer your medication question, you'll know that I will be there."

It was a masterpiece of public service, a call to self-help, and subtle promotion of his pharmacy. Combined with a petition to the mayor bearing 100 signatures, it had focused Mayor Aaron Broussard's attention beautifully.

Coveting gubernatorial ambitions, Broussard recognized a volatile political situation when he saw it. His city had turned its employees' and retirees' health care over to a motley group of out-of-town, out-of-state

Continued on page 20

This feature is presented on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting open discussion of professional issues in pharmacy. The Independent Voice, an 8-page practical monthly newsletter, is available from Ferdic Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in "Dickinson's Pharmacy" as they are those of the author and not necessarily those of NCPHA.

**Where there's smoke...
there may be bronchitis**



**"Recent research
has delineated early, more subtle
changes in lung and immune functions.
These alterations directly predispose
smokers to respiratory tract infection."**

Am Fam Phys 1987;36:133-140

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for today's patients***

Ceclor[®]
cefactor
Polyules[®]
250 mg

For respiratory tract infections due to susceptible strains of indicated organisms

Brief Summary.

Consult the package literature for prescribing information.

Indication: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β -hemolytic streptococci).

Contraindication: Known allergy to cephalosporins.

Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Ceclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Ceclor. Such reactions have been reported more

frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.

- Stevens-Johnson syndrome, toxic epidermal necrolysis, and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.
- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertension, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.

Abnormalities in laboratory results of uncertain etiology.

- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
- Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Ceclor and Coumadin concomitantly.
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinistest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

PA 8791 AMP

[021490 LRI]

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.



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DICKINSON'S*Continued from page 17*

companies, and their local pharmacists were getting the shaft.

He wrote stiff letters to each of the HMOs. "I do not understand where a problem exists if Mr. Bull and others are willing to sign the necessary agreements. Please take all necessary steps to include John Bull Pharmacy and other independents in your group plans. I anxiously await your response."

Bull kept a trump card up his sleeve—TV and newspaper coverage. "I wanted to settle this thing politically," he decided. The mayor and all the councilmen could appreciate that.

When this column went to press, they were ready to pass a freedom of choice ordinance, and press it on each of the HMOs.

Throughout the three-month battle, the HMO's and the drug chains (Walgreens,

Eckerd's, K&B) all remained as aloof and noncommittal as they could. They returned none of this writer's calls, nor those of Bull and his allies.

Probably, the Kenner city contract was not worth getting into a brawl over. Nevertheless, suspicions arose that the chains had tied preferential discount pricing into their contracts with the HMO's, such that the HMOs seemed afraid to open the contracts to independents.

And therein lies the most disturbing thought of all. If as most people think, "managed care" is supposed to mean accountability, elimination of waste, and optimum care—why all the aloofness, the avoidance of discussion, and the exclusion of competition?

Pharmacists who—unlike John Bull—don't get involved seem to invite their own misfortune in a perversion of the term, "managed care." They're being "managed" out of their own businesses!

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Continued on page 23

AIM HIGH

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Continued from page 21

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LSP = Limited Service Permit
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P21-NC COMMISSION UPDATE

The second meeting of the P21-NC Commission was held August 7, 1990, at the Institute of Pharmacy in Chapel Hill.

Fourteen of the nineteen members of the group gathered for a lively discussion chaired by William Edmondson on anticipated changes for NC pharmacy and strategies to meet these developments.

- The Commission heard reports from the four committees of the NCBP Task Force on Pharmacy. A 1993 target date is anticipated for any proposed changes in the NC statutes or regulations that result from the work of these committees.

- Members of the Commission agreed on the importance of having consensus on a mission for North Carolina pharmacy. A subcommittee was appointed to draft a mission statement for discussion at the next meeting.

- Keeping pharmacists in the state informed of proposed revisions in the standards of pharmacy practice was emphasized. Regular reports of Commission meetings will appear in *The Carolina Journal of Pharmacy* and the *NCSHP Newsletter*.

Comprised of pharmacy leaders from various areas of pharmacy practice, the P-21 NC Commission was formed in May, 1990, during the 110th Annual NCPhA Convention.

The purpose of the P21-NC Commission is to carry forward the strategic planning initiatives of the national P-21 Conference II held in October, 1989. A strategic plan for the profession of pharmacy in North Carolina will be developed by P21-NC Commission members.

The first report of the Commission appeared in the July, 1990 issue of *The Carolina Journal of Pharmacy*. Additional reports on Commission actions will appear following future Commission meetings. •

PHARMACY CALENDAR

1990

October 15	Tripartite Committee Meeting, Institute of Pharmacy
October 15	Pharmacist Recovery Network Task Force Meeting, Institute of Pharmacy
October 16	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
October 16	Woman's Auxiliary Fall Convocation, Institute of Pharmacy
October 21-25	NARD Annual Convention, Nashville, TN
November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, NV

1991

February 8-10	NC Pharmacy Leaders Forum, Mid Pines Resort
March 9-13	138th APhA Annual Meeting, New Orleans, LA
March 21	25th Annual Socio-Economic Seminar, Holiday Inn Four Seasons, Greensboro
May 22-25	111th NCPHA Annual Convention, Winston Salem

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July 4, 1990

CORRESPONDENCE COURSE

ADVISING THE URINARY INCONTINENT PATIENT



J. Richard Wuest, R.Ph., Pharm.D.
Professor of Clinical Pharmacy
University of Cincinnati
Cincinnati, Ohio



Thomas A. Gossel, R.Ph., Ph.D.
Professor of Pharmacology and Toxicology
Ohio Northern University
Ada, Ohio

Goals

The goals of this lesson are to:

1. explain the causes and treatments of incontinence; and
2. provide specific information to convey to consumers to insure they will correctly use medication and other devices for incontinence to maximize therapy.

Objectives

At the conclusion of this lesson, participants should be able to:

1. state the most common causes of incontinence;
2. choose from a list of drugs, those appropriate for specific types of incontinence;
3. list non-therapeutic methods to reduce the incidence and/or severity of incontinence;
4. state major pharmacologic and toxicologic considerations associated with the drugs discussed; and
5. indicate points of information to relate to patients about drug and non-drug therapy of incontinence.

Urinary incontinence is a loss of bladder

control. Loss can be slight (involuntary leakage of a few drops), partial (moderate to heavy loss), or total (complete involuntary bladder emptying). Fecal incontinence is loss of bowel control. Neither are diseases per se. They are symptoms with numerous causes.

This lesson focuses on urinary incontinence.

Background and Incidence

It is reported that at least 10 million Americans are incontinent. The actual incidence may be much larger because it is well known that many people are too embarrassed, even humiliated, to admit their problem. Only about one in 12 afflicted persons seeks medical help. It is often referred to as the "silent symptom" or "closet disease."

Women are more often affected than men. No age is spared: 7 million known sufferers are under 65 years of age. The elderly may be more seriously affected, both physically and socially. Too often, incontinence is the major reason for institutionalization. It is said to be the fifth leading cause of admission to long-term care facilities. Nearly 50 percent of nursing home residents are incontinent.

Urinary Tract

The human urinary tract is shown in Figure 1. Urine formed in the kidneys passes through the ureters into the bladder. About 300 mL normally collects before intravesical (within the bladder) pressure becomes sufficiently great to cause the urge to void. The detrusor muscle then contracts, the internal and external sphincters relax, and urine is expelled and drained outward through the urethra. The longer urethra of males may help account for their not being incontinent as often as females.

Autonomic Control of Bladder Function.

Bladder control is influenced by sympathetic and parasympathetic innervation. By understanding these basic mechanisms, the role of drugs that cause, and others used to treat, incontinence can be understood.

Sympathetic stimulation normally maintains sphincter constriction to inhibit voiding. Sympathetic control is mediated through both alpha- and beta-adrenergic receptors. Alpha receptors mediate the bladder outlet and urethra, and increase muscle tone. Beta-adrenergic receptors in the bladder body and dome assist in bladder relaxation. Parasympathetic receptors are spread throughout the bladder, outlet, and urethra. Their stimulation contracts the detrusor and overrides sympathetic tone, thus promoting voiding.

Intravesical Pressure. Intravesical pressure is dependent upon three forces: (1) detrusor tone, (2) volume of urine within the bladder, and (3) intra-abdominal pressure. As long as the intravesical pressure is less than pressure with the urethra, continence (bladder control) is maintained. Intraurethral pressure is governed by three forces: (1) tone of smooth muscle of the urethra and bladder neck, and periurethral striated muscle, (2) thickness of the urethral mucosa, and (3) intra-abdominal pressure. When intravesical pressure exceeds intraurethral pressure, urine will be voided.

Incontinence Classification

Incontinence can be subgrouped into five types: stress, urge, overflow, functional, and iatrogenic.

Stress Incontinence. This type accounts for up to one-half of all incontinence, being more common in women, especially of childbearing age and older. It follows events that lower intraurethral pressure below the

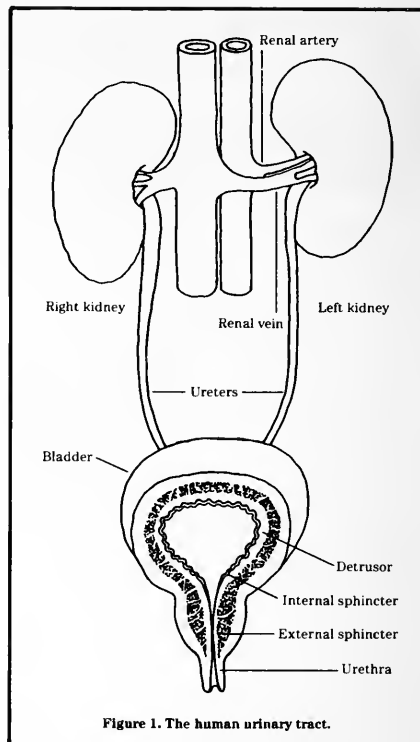


Figure 1. The human urinary tract.

intravesical pressure; such as coughing or sneezing, laughing, bending, or lifting clumsy or heavy objects. At this point a small amount of urine (up to 15 mL or so) can be lost.

Common causes include a shift in the ureterovesical angle, estrogen deficiency, or damaged or altered muscle tone of the external sphincter including deterioration associated with aging, multiple child birth, or surgery.

In men, stress incontinence is most often associated with urinary tract infection, chronic inflammation, or following urologic or prostate surgery or radiation therapy.

Signs that suggest stress incontinence include lack of nocturia (in contrast with urge incontinence), and loss of urine associated with coughing, straining, or laughing. Psychological or emotional tension or stress are not considered to be predisposing conditions, although some women state that anxiety or nervousness makes their condition worse.

Urge Incontinence. Identified as a sudden, uninhibited contraction of the bladder, urge incontinence is often a disease of the elderly.

The entire bladder contents are emptied, often with explosive force.

Causes include CNS pathology such as intracranial tumors, cerebrovascular accident, lobotomy, multiple sclerosis, and hydrocephalus (abnormal accumulation of fluid within the cranium). Persons with Parkinson's or Alzheimer's disease also experience urge incontinence. Peripheral conditions such as uterine prolapse, neoplasm, fecal impaction, infection, inflammation, prostatic hypertrophy, or scar tissue following surgery, can also cause the problem.

An important cause of urge incontinence is "deconditioning" the voiding reflex. This can occur over time, for example, following a period of incontinence. A person may become so anxious about the threat of incontinence that he voluntarily voids often. The resulting low bladder volume gradually increases detrusor tone and thickness, which in turn, exacerbates the problem.

Signs that suggest urge incontinence include a sudden necessity to urinate, frequency, small volume, and nocturia.

Overflow (Paradoxical) Incontinence. Overflow incontinence can occur when intravesical pressure exceeds intraurethral pressure only at exceptionally high bladder volume (in contrast with urge and stress incontinence where the bladder may not be so greatly filled). This results in spilling of small amounts of urine from a full bladder. The term "paradoxical" refers to the early stages of the disorder, when it may actually be difficult to void.

Common causes include bladder outlet obstruction, impaired sensory input, weakened detrusor muscle, enlarged prostate, multiple sclerosis, and spinal cord injury. Typically, overflow incontinence is assured when the person has suprapubic tenderness or reduced urine flow.

Functional Incontinence. This form is not actually a disorder of the bladder, but a "function" of events or factors that keep people from getting to the bathroom in time. Intravesical pressure continues to increase to the point where urine loss will be imminent.

Functionally-incontinent patients may have musculoskeletal limitations such as severe arthritis or muscle weakness, be confined to

bed or a wheelchair, or may have psychological problems that prevent them from following normal toilet practice. These persons may be depressed, or angered at other persons or with their environment. Their inattention to the normal urge to void is their means to display anger, resentment, or other emotional traits.

Iatrogenic Incontinence. Drugs such as diuretics, muscle relaxants, sympathetic blockers, and many psychoactive and neuroleptic agents can cause iatrogenic incontinence. Agents such as anticholinergics and antihistamines that lead to urinary retention can cause overflow incontinence. Iatrogenic incontinence is best treated by modifying drug therapy to eliminate the offending cause.

Management of Incontinence

Thirty percent of all cases are treatable, and all are manageable. Urge and stress incontinence are the most difficult to treat. Incontinence still remains a complex problem, however.

Drugs used in management are summarized in Table 1. Urinary tract antispasmodics that are officially indicated for use in incontinence control are listed in Table 2.

Stress Incontinence. Treatment is directed toward improvement of sphincter function. Anticholinergics per se, or drugs with anticholinergic activity such as imipramine, and alpha-adrenergic stimulants, can achieve this goal. Beta-adrenergic blockers promote greater bladder filling. Estrogens improve alpha-adrenergic receptor sensitivity to stimulation in women. Estrogen therapy may be all that is required to manage stress incontinence in some women.

Use of a pessary (a device placed intravaginally to support the uterus; commonly a donut-shaped ring) by women, or surgery to restore the normal ureterovesical angle, may relieve the problem. These aid the pelvic muscles in contracting the urethral muscle, thereby increasing its resistance against intravesicular pressure and loss of urine. Men may also benefit from surgery when incontinence is caused by tumors of the bladder, or other growths within the urethral canal.

Urge Incontinence. Treatment is directed at blocking detrusor contraction. Drugs such

Table 1
Drugs Used to Treat Urinary Incontinence

<i>Class</i>	<i>Action</i>	<i>Adverse Effects</i>
CHOLINERGICS Bethanechol	Increase intravesical pressure in the hypotonic bladder	Salivation, flushing, abdominal cramps, diarrhea, sweating
ANTICHOLINERGICS Belladonna alkaloids Propantheline	Decrease activity in hypotonic bladder. Used in urge incontinence, especially in neurologic impairment.	Dry mouth, blurred vision, constipation, restlessness, euphoria, fatigue, inhibited sweating
ANTISPASMODICS Flavoxate* Oxybutynin*	Directly depress bladder smooth muscle activity; produce local anesthesia.	As above
ALPHA-ADRENERGIC STIMULANTS Ephedrine Phenylpropanolamine	Stimulate urethral sphincter resistance; sometimes effective in stress incontinence.	Epigastric distress, nervousness, palpitations, cardiac arrhythmias, insomnia
ALPHA-ADRENERGIC BLOCKERS Phenoxybenzamine	Reduce urethral sphincter resistance; occasionally used to treat overflow incontinence; may be combined with bethanechol to increase bladder pressure and decrease outlet pressure.	Orthostatic hypotension, loss of ejaculatory function, nasal congestion, miosis, tachycardia
MISCELLANEOUS Estrogen	Increase sensitivity to alpha stimulation.	Nausea; increased risk of endometrial cancer
Benzodiazepines	Relax detrusor and bladder sphincter; used in overflow incontinence.	Sedation, sleepiness, GI irritation, possible confusion in elderly
Imipramine	Provides alpha stimulation and anticholinergic activity.	Dry mouth and eyes, bladder obstruction in men with enlarged prostate

* Officially indicated in urinary incontinence.

as anticholinergics, antispasmodics, and (unofficially) calcium channel blockers may be helpful. When conditions necessitate, surgery will be performed to remove tumors, or correct a hypertro-

phied prostate gland or prolapsed uterus.

Urge incontinence is often reversible in younger children. While it may likewise be reversible in older adults, it usually is not.

Table 2
Commercially Available Urinary Tract Antispasmodics

<i>Generic Name</i>	<i>Trade Name</i>	<i>Dosage Form(s)</i>
Flavoxate	Urispas	100 mg tablet
Approved indications: symptomatic relief of dysuria, urgency, nocturia, suprapubic pain, frequency, and incontinence as may occur in cystitis, prostatitis, urethrocystitis/urethrotigonitis.		
Oxybutynin	Ditropan	5 mg tablet 5 mg/5 mL syrup
Approved indications: relief of symptoms associated with voiding in patients with uninhibited neurogenic and reflex neurogenic bladder.		

Overflow Incontinence. Drug therapy includes muscle relaxants such as benzodiazepines which help relax detrusor and outlet resistance. Alpha-adrenergic blockers may help decrease internal sphincter tone. Cholinergic stimulants such as bethanechol may increase intravesicular pressure and promote a more normal void pattern. These agents have limited usefulness in elderly persons, because of inherent toxicity. Surgery is therapeutic if obstruction, such as an enlarged prostate, is the cause of reduced outflow.

Intermittent self-catheterization is almost always effective. Once the technique is mastered, patients may perform this every 2 to 4 hours to release urine and prevent its backflow into the kidneys. The primary complication of overflow incontinence is hydronephrosis (distention of the pelvis and calices [cavities] of the kidney, with accompanying destruction). Catheterization can alleviate this.

Functional Incontinence. There is no direct drug treatment of functional incontinence. Alleviation of underlying psychological causes with appropriate medication may help. An effective way is for these persons to chart their urine voiding patterns. Once a pattern is developed, it can then be anticipated when urination is most likely, and appropriate steps can be undertaken. Absorbent undergarments, or catheterization of nonambulatory patients may also be appropriate.

Dealing With Odor. Good hygiene minimizes the chance of malodor occurring. OTC internal deodorant tablets containing

chlorophyllin copper complex and bismuth subgallate are used to reduce urinary and fecal odor associated with incontinence. Examples include Nullo® and Chloresium®.

In addition to pharmacologic means of management, there are numerous other products and activities that may benefit incontinent individuals. For example, there is a wide range of **disposable undergarments, diapers, and shields** for ambulatory and nonambulatory patients. These are composed of light-weight, highly absorbent, nonallergenic materials that are comfortable to wear, and easy to dispose of. Shields of similar construction that are worn inside traditional undergarments are intended for less serious incontinence problems. There are also **reusable garments** consisting of rubber- or vinyl-lined interiors, or polyester briefs that accommodate insertable absorbent pads.

Condom-catheters and penile clamps are used by men. Condom-catheters (Texas catheters) envelope the penis just as a regular condom does. They are held in place with adhesive. These devices are longer than the flaccid penis and either have a clamp to hold back urine flow until it can be disposed of properly, or are connected to a urinary drainage bag. As an alternative, traditional condoms may work just as well if urine loss is minimal, such as with stress incontinence.

Penile (Cunningham) clamps can be uncomfortable, and potentially dangerous. If too tight, they can restrict blood flow into the penis. Left in place too long, urinary tract infection may develop.

Intermittent catheterization is an acceptable treatment for overflow incontinence. Performed aseptically, it is safer than indwelling catheterization.

Self-catheterization is quite effective and safe in many persons with overflow incontinence. Typically, a catheter is inserted every 2 to 4 hours. This permits whatever urine that has accumulated in the bladder to drain into the proper receptacle.

Indwelling catheterization is a last-resort to treatment of incontinence, even for bedridden patients. Indwelling catheters can serve as a source of irritation and infection.

Incontinent patients must follow strict **hygienic measures**. Skin that is macerated with urine can colonize bacteria and fungi, leading to serious pathology. The presence of urine can also be a cause of foul odors. Various topically-applied barrier products are available to protect the skin against the damaging effect of urine. They also permit cleansing the skin without the drying action of soap.

Bladder control is, in part, a voluntary process. It therefore can be improved by learned activity. Incontinent men and women can often develop better control of incontinence by **exercising** the pubococcygeus muscle (the internal muscle that controls urine flow) by tightening and relaxing it. These "Kegel Exercises" were originally developed to aid women after childbirth. The muscle can be identified by voluntarily stopping and starting urine flow during voiding. A typical program includes three sessions a day, with 10 to 15 tightening/relaxing episodes a session. Benefit is reportedly seen in 3 weeks, but more likely in about 3 months.

Advising Patients on Incontinence

Incontinent persons are often too embarrassed to discuss their problem. They erroneously believe there is a stigma associated with it. Elderly women, for example, may use sanitary pads because they are ashamed to mention their incontinence.

Pharmacists can help remove this stigma by listening carefully and empathetically, advising appropriately, and maintaining a complete inventory of incontinence products. This is sound advice, professionally and economically.

Incontinence products are the second fastest growing category (exceeded by home

testing products) of home health care goods sold in pharmacies. One estimate pegs annual sales for 1990 exceeding \$1.5 billion.

Incontinence can be worsened by constipation. Constipation may be exacerbated because some persons believe they should limit their intake of fluid. A high-fiber, high-bulk diet with adequate fluid intake will be helpful.

Weight reduction may be useful for incontinent obese persons. Reduction of 5 to 10 percent of body weight can alleviate intra-abdominal pressure sufficiently to relieve incontinence.

Caffeine-containing beverages and alcohol both have diuretic activity. These should be limited, or eliminated entirely. Some foods which reportedly cause diuresis in susceptible individuals include chocolate, highly spiced foods, sugar, tomatoes, honey, and milk. The effect is not universal. An individual may want to selectively eliminate one or all these items from the diet to see if the condition improves. While some OTC products, such as antihistamines with strong anticholinergic action, or decongestants with alpha-adrenergic activity may cause urinary retention, incontinent patients should be dissuaded from such self-treatment with them until they have been evaluated by a physician. Both drug groups can cause severe adverse effects, especially in elderly persons, and both are contraindicated in some. Moreover, drugs that treat one type of incontinence (e.g., urge) can accentuate other types (e.g., overflow).

OTC artificial saliva and artificial tear products can be recommended for persons taking prescribed drugs that have anticholinergic activity and therefore dry the mouth and eyes. These conditions are especially common in the elderly. Due to the discomfort these drugs cause to the mouth and eyes, patients may not take them properly. Use of artificial saliva and tear products may assure compliance with prescribed medication regimens in such patients.

Sources of support for incontinent individuals can be obtained by contacting "HIP" (Help for Incontinent People), Dept RBC, P.O. Box 544, Union, SC 29379; or The Simon Foundation, P.O. Box 835 KC, Wilmette, IL 60091. Both groups were established to promote public and professional education about incontinence. •

CORRESPONDENCE COURSE QUIZ

Urinary Incontinence

1. Of the following types of incontinence, which reportedly responds best to intermittent catheterization?
 - a. Functional
 - b. Overflow
 - c. Stress
 - d. Urge
2. Stimulation of which subdivision of the autonomic nervous system is most likely to promote voiding of urine?
 - a. Parasympathetic
 - b. Sympathetic
3. The tube that urine passes through on its way from the kidney to the bladder is the:
 - a. glomerulus.
 - b. urethra.
 - c. nephron.
 - d. ureter.
4. The exercise regimen that improves bladder control by tightening and relaxing the internal bladder muscles is referred to as the:
 - a. Cholecyst exercise.
 - b. Fonda exercise.
 - c. Kegel exercise.
 - d. Trigone exercise.
5. Which of the following statements is true?
 - a. When the intravesical pressure exceeds the intraurethral pressure, urine will flow.
 - b. When the intraurethral pressure exceeds the intravesical pressure, urine will flow.
6. All of the following tissues relax when urine is excreted from the bladder EXCEPT the :
 - a. detrusor muscle.
 - b. external sphincter.
 - c. internal sphincter.
7. The group of OTC drugs that is most likely to exert anticholinergic activity is:
 - a. analgesics.
 - b. antihistamines.
 - c. appetite appeasers.
 - d. decongestants.
8. Incontinence caused by drugs is referred to as:
 - a. functional.
 - b. iatrogenic.
 - c. stress.
 - d. urge.
9. Intravesical pressure refers to pressure:
 - a. on the bladder from the outside.
 - b. from the backflow of urine from the bladder to the kidneys.
 - c. in the blood vessels supplying the bladder.
 - d. within the bladder.
10. Which of the following groups of drugs is most likely to be effective in treating stress incontinence?
 - a. Alpha-adrenergic blockers
 - b. Cholinergic stimulants
 - c. Anticholinergics
 - d. Beta-adrenergic agonists

CE form on next page.



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WELCOME, NEW MEMBERS!

The following pharmacists have become new members of NCPHA since the publication of our last journal issue. They have joined more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Cynthia T. Carter, *Greensboro*
Laura Anne Clifton, *Winston Salem*
Joan W. Floyd, *Roxboro*
Connie Gaitley, *Maxton*
Sarah Upchurch Browning, *Williamston*
Kimber Leigh Harris, *Salisbury*
Lisa M. Hunt, *Greenville*
Beth Anna Jordan, *Clarkton*
Miracle Y. Lindsay, *Carrboro*
Robin B. Michael, *Dunn*
Carla Miller, *Mooresville*
Martha S. Whitaker, *Enfield*
Luanne Wooten, *Fayetteville*
William M. Rudenko, *Waterbury, CT*

Jill Elizabeth Maret, *Charlotte*
Jodie G. Uzzell, *Greenville*
Kimberly D. Biggs, *Mooresville*
Elliott Brummitt, *Chapel Hill*
Julie P. Faulkner, *Chapel Hill*
Mark Lemuel Greer, *Winston Salem*
Julian Walter Harris, *Chapel Hill*
Chip Miller, *Carrboro*
Eileen T. Mitchell, *Rocky Mount*
Beverly G. Taylor, *Lincolnton*
Melissa A. Williams, *Statesville*
Douglas Yongue, *Winston Salem*
James R. Thomas, *Wilson*

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Urinary Incontinence

- Attach a mailing label from The Carolina Journal of Pharmacy or print your name and address and mail to: CE Test, NCPHA, P.O. Box 151, Chapel Hill NC 27514.
- Completed answer sheets may be returned on a monthly or less frequent basis for grading.
- **This is a member service. Non-member tests will not be graded nor CPE credit hours given.**
- NCPHA will maintain a copy of your completed CPE tests and upon successful completion of each program, will issue a certificate for one (1) hour of Board-approved CPE credit.
- If more than two (2) questions are answered incorrectly, the test is failed. You will be given one (1) opportunity to submit a second answer sheet.

Please circle correct answer

1. a b c d

2. a b

3. a b c d

4. a b c d

5. a b

6. a b c

7. a b c d

8. a b c d

9. a b c d

10. a b c d

Evaluation of material: Excellent Good Fair Poor

Name _____

Address _____



This column features news briefs about people and events related to pharmacy around the state. The NCPHA staff welcomes your comments and any contributions you wish to make to this column. Photos (black and white) are also welcome. Send us your news!

Weddings

S. Duane Tester, a 1987 graduate of UNC-CH School of Pharmacy, and Laurie L. Richardson were married June 23, 1990 in Brentwood, Tenn. Mr. Tester is a pharmacist for Kaiser Permanente in Charlotte. The couple lives in Matthews.

Valerie K. Guenther and Keith A. Brooks, both of Cary, were married April 21. The bride, a UNC-CH School of Pharmacy graduate, is employed by Wake Medical Center in Raleigh.

Rhonda L. Johnson of Broadway and Robert E. Wood of Greenville exchanged wedding vows Saturday, May 5, at the Spring Hill United Methodist Church. The bride is a UNC-CH School of Pharmacy graduate. She is employed by Kerr Drug in Greenville.

R. Mark Johnson of West End wed Vicki B. Jones of Southern Pines at the First Presbyterian Church in Raleigh. The bridegroom is a UNC-CH School of Pharmacy graduate. He is a staff pharmacist at Moore Regional Hospital.

Cynthia D. Marshall of Greensboro and Timothy A. Martin of Kernersville were wed June 23 in Clyde First Baptist Church. The bride is a graduate of the University of Georgia College of Pharmacy and is a pharmacist for Phar-Mor in Greensboro.

Teresa L. Young of Carrboro and Everett Perry of Chapel Hill were married June 23 at University Baptist Church. Both are UNC-CH School of Pharmacy graduates. The bride is a manager at Revco; the bridegroom attends Bowman Gray School of Medicine.

Births

Marcia and **Bill Manning** announce the birth of their second son, Jordan Andrew, born August 6, weighing 8 pounds, 6 ounces. Bill, a 1984 UNC School of Pharmacy graduate, operates Columbia Pharmacy in Columbia.

Bruce and **Sarah Tipton**, of Matthews, are the proud parents of a baby girl, Bethany Elizabeth, born August 9, 1990. Young Miss Tipton appeared weighing 8 pounds 5 ounces and was 20 $\frac{1}{2}$ inches long. Bruce is Southern Division Vice President of Geneva Generics and Sarah works with Clinicare in Charlotte.

F. Scott Morgan and Rhonda Y. Morgan of Clemmons announce the birth of their son, David Scott Morgan on Monday, August 20. He weighed 7 pounds, 7 ounces. Scott is a 1984 graduate of the UNC School of Pharmacy and is employed by Crown Drugs in Lewisville.

Deaths

Guy O. Tripp, 90, of Altavista, Virginia, was reported to have died by his niece, with whom he was living. A native of Ayden, Tripp was associated with pharmacies in Durham, Winston Salem, Greensboro, Plymouth and Kinston. He opened his own store in Wilmington after World War II. He served as an inspector for the Board of Pharmacy and was a Life Member of the NCPHA.

Herbert O. Champion, Waynesville, died August 15, 1989 at the age of 94. Born in Mooresboro, he graduated from UNC in 1925 with a Ph.D in Pharmacy. He worked in Shelby and Gastonia before operating his own store in Waynesville. He was a veteran of World War I where he received the Distinguished Service Cross.

J. Fleming Lovett, Lillington, died July 31, 1990. Born in Graham, Lovett was a 1948 graduate of the UNC-Chapel Hill School of Pharmacy. Lovett was a veteran of World War II where he served in the U.S. Army. He had worked in pharmacies in Liberty and in Lillington and had served as President of the Harnett County Pharmaceutical Society in 1961.

Steve W. Frontis, Greensboro, died July 11, 1990 after a lengthy illness. He was 81 years old. Frontis was a retired Eli Lilly

salesman and had worked with the company from 1938 to 1974. He graduated from the Philadelphia College of Pharmacy and Science and passed the NC Board of Pharmacy exams in 1930. He was inducted into the NCPHA "Fifty Plus" Club at the 1980 Convention in Raleigh. A memorial loan fund in his honor has been established in the Consolidated Student Loan Fund. Contributions in his memory are being received at the Institute of Pharmacy in Chapel Hill.

Bruce Summey, 43, Revco pharmacist, died June 13 at Carolinas Medical Center in Charlotte.

Appointments

Margie Rachide of Kinston, wife of Al Rachide, NCPHA member and owner of Pink Hill Pharmacy in Pink Hill, was elected president of the American Diabetes Association, N.C. Affiliate, Inc. at the organization's recent Annual Meeting. She is employed by Lenoir Memorial Hospital as Patient Educator Coordinator, Program Director of Cardiac Rehabilitation and Wellness Manager.

Eric Locklear, a native of Pembroke, has been named to the position of pharmacy supervisor at Southeastern General Hospital. Locklear received his B.S. degree from the UNC School of Pharmacy and earned master's degrees in both hospital pharmacy and business administration from the University of Utah.

Margaret C. (Peggy) Yarborough of Cary has been appointed as the new associate director for pharmacy education of Area L AHEC. She will be responsible for the development and coordination of Campbell University School of Pharmacy student training in the Area L AHEC region.

Charles F. (Chip) Owen III, of Asheboro, has been promoted to lieutenant colonel in the United States Army Reserve.

Awards, Honors, Citations

Thomas R. Thutt, Kinston, is one of five recipients to receive a 1990-91 NARD Foundation/Merck Company Foundation Demonstration Grant for Community Pharmacy Research. The grants are awarded annually to independent retail pharmacists with a collaborative tie to pharmacy school faculty to conduct research projects on independent retail pharmacy practice. Thutt's project is, "Marketing a New Concept in Prescription Packaging." •



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JEFFERSON NAMED DIRECTOR OF PROFESSIONAL AFFAIRS

Kathryn Kuhn Jefferson, Managing Editor of *The Carolina Journal of Pharmacy*, has been employed on a full-time basis as Director of Professional Affairs of the North Carolina Pharmaceutical Association. Ms. Jefferson will continue as Managing Editor of *The Journal* and, in addition, will be responsible for interaction with local and regional pharmacy associations and societies, membership enhancement and member services, development of CE programs, and preparation of grant and survey proposals on behalf of NCPHA.

Ms. Jefferson has worked part-time with NCPHA since May of 1988, including a six month leave of absence during which she was the George P. Provost Editorial Intern at ASHP headquarters in Bethesda, Maryland, concentrating on publishing and editing. A native of Louisville, Kentucky, Ms. Jefferson received her B.S. in Pharmacy from the University of Kentucky in Lexington and is currently completing a Master of Science in Pharmacy Practice Degree from UNC-Chapel Hill. Before moving to North Carolina in 1987, she served as Director of Clinical Education at Presbyterian Hospital in Dallas, Texas. She and her husband, Jay, an oral and maxillofacial surgeon, reside in Raleigh. •

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STAFF PHARMACIST: The VA Medical Center in Salisbury is seeking a staff pharmacist for inpatient (unit dose and IV admixtures) and outpatient services. We offer a comprehensive benefits package. Salary ranges from \$35,167 to \$43,960 depending upon qualifications. For information contact Bill Rigsby, Chief, Pharmacy Services, at 704-638-3441. EOE. Department of Veterans Affairs.

PHARMACISTS WANTED: Blue Cross and Blue Shield of North Carolina (Durham Service Center) is seeking pharmacists to work on a part-time as needed basis to screen and code drug claims for processing. Excellent opportunity to learn. Good salary. Apply to: Jane McMullen, Personnel, Blue Cross and Blue Shield of North Carolina, P.O. Box 2291, Durham, NC 27702.

DOCTOR OF PHARMACY (PHARM.D.): Would you like to obtain a Pharm.D. degree? If you are a recent B.S. Pharmacy graduate, contact the Director of Admissions, Campbell University School of Pharmacy, Buies Creek, NC 27506 or Call 919-893-4111, Ext. 3101.

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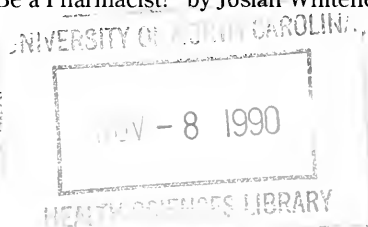
VOLUME 70

NOVEMBER 1990



Campbell University School of Pharmacy Fall Convocation, program participants (*from left*): Tim Poe, president, NCSHP; Bill Randall, president, NC Board of Pharmacy; Josiah Whitehead, vice president, Burroughs Wellcome Co.; Frank Burton, president, NCPHA; Ron Maddox, dean, Campbell U. School of Pharmacy; and Jack Watts, chairman, Founders Committee, Campbell U. School of Pharmacy.

See inside story: "Are You Sure You Want to Be a Pharmacist?" by Josiah Whitehead.



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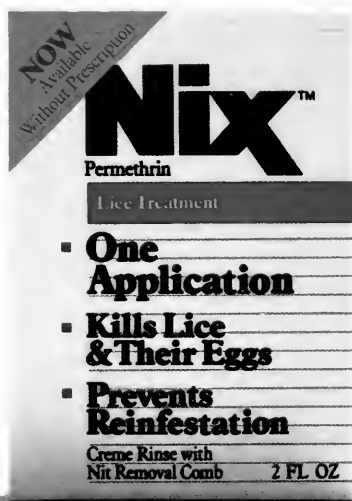
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(USPS 091-280)

NOVEMBER 1990

VOLUME 70

NUMBER 11

ISSN 0528-1725

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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. *The Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental U.S.). Overseas rates on request. Second class postage paid at Chapel Hill, NC.

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THE PRESIDENT'S PAGE

J. FRANK BURTON
NCPHA President

Marketing the NCPHA

At the close of NCPHA's 110th Annual Convention in May, I issued a challenge to those present to become *ambassadors-at-large* for NCPHA.

I made this request because it is my belief that until our state association can demonstrate that its membership represents a **large majority** of pharmacists in North Carolina, NCPHA's ability to affect the legislative changes and bureaucratic policy decisions that are necessary to protect and advance our profession will never reach its full potential! So while NCPHA's membership level of 50% (half of all pharmacists living in NC belong to NCPHA) is well ahead of the 34% average of all state pharmacy associations, we have a lot of recruiting to do before we reach the membership levels necessary to dramatically improve our clout in Raleigh!

In order to achieve this goal of significant increase in our membership, we need an effective marketing plan — one that will help us gain new members and retain current members. The major thrust of our membership marketing must be the process of matching our association's resources, activities, and programs with the needs of current and potential pharmacist members.

While the provision of information and opportunity for networking with our peers has always been one of NCPHA's essential purposes, we have moved beyond these functions and now provide more tangible products and services, such as our various insurance programs, publications, and continuing education programs.



These tangible benefits of NCPHA membership are what we must *advertise* and promote as we attempt to *sell* pharmacists on NCPHA membership. As any good salesman will tell you, the key to success is convincing the potential customer that he needs the product you are selling; and we have a great bargain at \$100 a year!

But no product sells if people don't hear about it, so we need to promote NCPHA membership at *every* opportunity. For example:

- Talk to your non-member colleagues at local association meetings and at C.E. seminars.
- When you talk to non-member pharmacists on the phone in the course of doing business, invite them to get in on the benefits NCPHA has to offer.

If you are unsure which of your local pharmacists are not members, contact the NCPHA staff for a current list of the members in your area.

If every member would make a commitment to recruit just one non-member pharmacist to join NCPHA by our next convention, we would achieve the objective of almost 100% membership in our state association.

So let's get out there and meet this sales quota by May of 1991 when we meet in Winston-Salem for our 111th Annual Convention. •

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PHARMACY'S FUTURE DEPENDS ON THE PATRONAGE OF THE ELDERLY

Schering Report XII probes pharmacists' role in meeting special needs of older patients.

The future of today's pharmacy will depend, in large measure, on the pharmacist's success in courting, winning and keeping the patronage of older patients, according to a new, independent nationwide survey commissioned by Schering Laboratories.

"This conclusion is based in three very simple but highly significant facts," said Dr. Jack Robbins, director of pharmacy affairs for Schering Laboratories. "First, older patients will continue to grow in both actual numbers and as a percentage of the adult population. Second, a higher proportion of seniors take prescription medications than any other age group. Third, older patients, individually, take more prescription medications than any other age group.

"The significance of the data is underscored by the fact that people aged 60 and over, while representing only some 20% of the adult population, account for over 40% of all expenditures on prescription drugs," he added.

Emphasizing the importance of older patients to the future prosperity of the profession of pharmacy, Robbins noted that the average American of all ages receives 6.5 prescriptions per year. That rate rises to 10.5 for people 60 to 69, and to 13 prescriptions per year for patients over 70.

Schering Report XII, "The Older Patient and Pharmacy: Special Needs and Special Opportunities," was based on personal in-home interviews with some 2,000 adults across the country. The study set out to answer three primary questions: How do the pharmacy needs of seniors differ from others? Are pharmacists aware of older patients' unique needs? How can pharmacists serve their senior patients better?

The study strongly suggests that seniors place great emphasis on interpersonal relationships with pharmacists and look for a courteous, friendly and caring person across the counter. Are pharmacists aware of seniors' expectations? Probably not as much as they



should be, according to the study. An obvious first step toward serving seniors better, the study observes, is for pharmacists to view the senior patient as, just that, a **patient** and not simply a customer.

The Schering Report dealt with a number of potential misconceptions: the first, that all seniors are economically needy and don't have any money to spend in the pharmacy. "Perhaps this was true some years ago, but not today," said Robbins. "With Social Security increasing annually and Medicare and other insurance resources, most seniors have the means, and certainly the will, to pay for proper health care—especially prescription medicines.

"Furthermore, a recent consumer study shows that older patients spend 50% more per capita on non-prescription medicines than younger people, thus providing pharmacists with another opportunity to increase overall sales," he observed.

People 60 to 69 years of age receive an average of 10.5 prescriptions per year; that rate rises to 13 for patients over 70.

A second misconception is that seniors are just like everybody else physically, suggesting that any special concessions to them might be seen as a patronizing and possibly offensive.

"The truth is that older patients do not have the same physical capacities as younger people," Robbins said. "They are the first to admit it. Some of these physical limitations

can directly affect the pharmacist-patient relationship.

"The U.S. Census Bureau reports that almost 60% of people 65 years and older, who are not in institutions, are functionally limited in some way," he added. "Forexample, 22% have difficulty reading ordinary newsprint. Imagine their problem reading the small labels on prescription containers."

Robbins continued: "Fifteen percent have trouble hearing normal conversations. Imagine how desperately they want to understand the pharmacist's dosage instructions. Another 35% have difficulty in walking a quarter of a mile. This factor bears on how conveniently a pharmacy is located, the size of the parking lot, and even the size of the store itself."

A third misconception says that older people have lost much of their capacities, both physically and mentally, and are best treated as very old children. While age admittedly brings infirmities, it also brings wisdom and dignity. Older patients want respectful, not necessarily preferential, treatment, the study indicated. "Even if they don't walk as well as they used to, they'll find a way to get to a competitor's pharmacy if they feel they are not being treated with respect," he added.

Schering Report XII reveals that one in four older patients is taking medications prescribed by two or more doctors. Robbins noted that this sends up warning flags for pharmacists on possible harmful drug interactions in cases where one doctor is not aware of medications prescribed by another.

Eighty-six percent of older patients reported that they use only one pharmacy, demonstrating a very high degree of loyalty.

Who wrote the prescriptions? A full two-thirds (66%) were written by the family doctor, a general practitioner. This was clearly a surprise, the study noted, since the seriousness of the seniors' ailments might have led to an assumption that specialists were the principal prescribers. Of the remaining prescrip-

tions, internists accounted for 21% and cardiologists 13%.

With the prescription in hand, do seniors fill the prescription, and do they take the medication as directed?

The comparatively lower rate of OTC purchases at independents should alert independent pharmacy operators to consider what they should be doing to re-establish their traditional role in making OTC recommendations.

"Two out of ten seniors admit to occasionally deciding not to have the prescription filled," Robbins said. "That's too many, but not as many as the younger patients, where the rate rises to three in ten. Seniors have three reasons most often for not filling prescriptions: the medication was not needed because the condition improved (30%); the medication would not have helped (17%); and the cost of filling the prescription was a factor (11%)."

"One-third of seniors admitted they 'sometimes' decided to stop taking the medication," Robbins noted. "Again, that's too many, but better than younger patients (43%) who discontinued their medicines prematurely."

"Regardless of age, the 'condition improved' was the number one reason for stopping medication. The number two reason was side effects, which was cited somewhat more frequently by older than younger people," he added.

As people get older and contend with more health problems and more medications, the pharmacy plays an increasingly important role in their lives, the Schering Report observed.

How loyal are seniors to their regular pharmacy? Eighty-six percent of older patients reported that they use only one pharmacy, demonstrating a very high degree of loyalty. The loyalty factor for those under 60 was slightly lower (78%).

While operators of all types of pharmacies hope that customers who come in for prescriptions will also purchase some other goods and services—non-prescription (OTC) drugs, cosmetics, toiletries, greeting cards and gifts—chains have a better chance of making such a sale to seniors than do independents. For example, 60% of seniors who recalled shopping in an independent pharmacy in the previous six months purchased non-prescription medicines there, while 76% who shopped in chains made similar purchases.

"The contrast is even greater for cosmetics and toiletries," Robbins said. "Only 30% of people shopping in independent pharmacies, compared with 60% of chain shoppers, made a purchase. Similarly, while only 33% of seniors who shopped at independent pharmacies picked up cards or gifts, almost twice as many (57%) of those patronizing a chain did so."

The comparatively lower rate of OTC purchases at independents should alert independent pharmacy operators to consider what they should be doing to re-establish their traditional role in making OTC recommendations and merchandising the "front end" of their pharmacies, the study noted.

Does the doctor who writes the prescription also suggest where to have it filled? According to the Schering Report, the answer, nine times out of ten, is no. Only 8% of those over 60 and 12% of those under 60 recalled a doctor ever suggesting a specific pharmacy. In those few cases where the doctor did, however, none out of ten followed their doctor's advice.

The Schering Report also asked seniors how they go about choosing their "regular" pharmacy and examined the degree to which their decision-making process resembles or differs from the younger population. Of 19 factors, five were most commonly cited. Older people look mainly for: convenient location (37%); prompt service (34%); and a friendly and courteous pharmacist (33%)—all in a virtual photo finish for the lead. Close behind were "fair prices" for prescriptions (27%) and a pharmacy where the pharmacist provides information without being asked (25%).

"The surprise here may be that prices did

not overshadow the other factors," Robbins said. "Pharmacists occasionally hear patients grumbling about prices, but price does not appear to be an overriding factor in selecting a pharmacy."

The study acknowledged that pharmacists are limited in their ability to do very much about the price or the convenient-location factor. It stressed, however, that some things are within the pharmacists' control—things like providing friendly, courteous and prompt service, and offering some unsolicited but much appreciated information about the prescribed medication.

To what degree are the priorities of seniors in choosing a pharmacy different from those of everybody else? The same five factors top the priority lists of those under 60, but some subtle differences emerged.

"Both age groups give convenient location and fair prices almost identical weight," Robbins said. "But two factors—prompt service and friendly and courteous service—were somewhat more important to seniors than those under 60."

Older people look mainly for: convenient location (37%); prompt service (34%); and a friendly and courteous pharmacist (33%)...

"The surprising finding was that 5% more of the younger patients stressed the importance of finding a pharmacist who will tell them about their prescription—even if they don't ask," he added. "Why? Possibly because younger patients lack the long history of taking medications and, therefore, feel relatively insecure in this new activity."

"Whether junior or senior, whether shopping at an independent pharmacy or chain pharmacy, patients share one thing in common," Robbins observed. "They know what they want from a pharmacy. But the question remains, do they **get** what they want?"

The study showed that those patronizing independent pharmacists were more than twice as likely as those patronizing chains to "strongly agree" with the statement, "The pharmacist knows me and my family" (58% versus 22%).

"Patrons of independent pharmacists also agree that their pharmacist has a host of other inestimable personal characteristics, usually found only in Eagle Scouts," he said. "These include being caring, friendly and courteous; lending an ear when advice is needed; being alert to errors; and being prompt.

... typical complaints: "I rarely get to see the pharmacist ... I have to leave the prescription with a clerk, and get the medicine from a clerk ..."

"While all these traits are noted less often by those who patronize chains, seniors loyal to chains give them higher marks on fair prices—for both prescription and non-prescription medications—and for a variety of other merchandise, such as gifts and cosmetics," he added.

Asked whether an independent or a chain pharmacist is more knowledgeable about prescription medicines, seniors cited an independent by more than 2-to-1 (30% versus 13%), with the under-60 group essentially concurring (24% versus 15%).

On a parallel track, 43% of older patients strongly agree that independent pharmacists are more willing to speak to them personally and give advice. This contrasted with only 10% of seniors who strongly agreed that chain pharmacists are willing to speak to them. The 4-to-1 ratio favoring independent pharmacists prevailed as well among the younger group.

Acknowledging that choosing a regular pharmacist is a very personal decision, the interviewers then asked seniors to tell, in their own words, what they liked best—and what annoyed them most—about their pharmacist.

Topping the seniors' "like-most" list is friendly/caring/helpful personnel (375). "He's on call all the time, he even said to call him at home," a Kansas woman said about her independent pharmacist. A retired woman in Florida commented, "He is always courteous and never forgets to give me my seniors citizens discount." Others said, "He's courteous, friendly and nice, and real accommodating...Always asks about family members...He makes sure I get my prescription medicine, 'loaning' me part of the prescription—just a few pills, you know—until I can afford it."

The second most popular factor in choosing a pharmacy is prompt service (25%), the study revealed. When ailing, seniors understandably are anxious to get home as quickly as possible. Number three on the "like" list is convenient location (21%). Since most people usually have a choice among a number of equally accessible locations, other factors weigh more heavily in the final decision.

Mentioned almost as frequently as location is the comment, "The pharmacist takes time to answer my question" (18%). "He's old fashioned in that he takes the time to help each person," a New England woman explained.

On the "what-annoys-me" list, a majority (60%) of seniors, but only 40% of the under-60 group, said, "Not a darn thing, no complaints." The main complaints about pharmacies concerned slow service, waiting in lines and waiting for prescriptions. People under 60 complained of this more than older patients (27% versus 17%).

Other typical complaints: "I rarely get to see the pharmacist...I have to leave the prescription with a clerk, and get the medicine from a clerk...They run out of medicine and you have to wait for it to be ordered...I live in a small town and some of the help outside the store talk about my ailments with other people in town."

Asked to suggest ways that pharmacists can improve their service, few people could think of areas that needed improvement. "To put all that sunshine in perspective," Robbins observed, "remember, they're talking about their current pharmacy, not the one they may have left because of unacceptable treatment."

Among suggestions for improvement, lowering prices was mentioned by only 14%, indi-

cating that price does not seem to be a serious grievance. Twenty-two percent of younger patrons, compared to 9% of older patrons, suggested that service be speeded up. Finally, 14% of younger and 9% of older patients called for pharmacists to become more accommodating and more informative.

Among the verbatim comments and grassroots suggestions: "Pharmacists should listen more...People aren't as dumb as pharmacists may think...Pharmacists should come out to talk to you personally...They should be more available...They should provide more information about the side effects...Pharmacies should have seats for people who are waiting for prescriptions...If there's a senior citizens discount, pharmacies should publicize it."

Robbins said: "Recognizing that people want a direct and open line of communications with pharmacists, we put this connection to the test by asking older patients who they would talk to first if they had a question about a prescription medicine. If that person were not available, who was their second choice."

The study also identified two other services that many seniors just didn't know were available to them—senior citizens discounts and direct insurance company billing, both of special interest to seniors. While 59% were aware that their regular pharmacy did offer senior discounts, 18% said their regular did not provide that service. A surprising 23% were not sure either way.

On another key issue, the Schering Report found that patrons of independent pharmacies appear to get more information on prescription medications than those who shop in chain pharmacies. Particularly noteworthy is the comparison with respect to side effects. Older patients who patronize independent pharmacies (39%) said they are always told about possible side effects, compared with 25% of seniors who patronize chains.

"It would seem obvious that greater conscientiousness in offering information and advice on medications—service that many patients rate as critical—would significantly help increase the rate of patient compliance," Robbins said.

Pharmacists sometimes provide additional advice in the form of printed instructions, but not very often, the study showed. Only 37% of seniors recalled their independent pharma-

cist ever giving them printed information, other than that on the prescription container. Moreover, that percentage drops to 25% in the case of chain pharmacies.

Noting that the risk of drug interactions will continue to grow as more people live longer and require more medications, the study measured the extent of individual medication monitoring. Seven out of ten seniors said their pharmacist maintains a record of all their medications. "Obviously, a computerized system is a potential ally here," he added. Among those who did not know if their pharmacist maintained their records, seven out of ten (68%) agreed that it was a good idea if they did. In addition, 45% of seniors said they keep their own records.

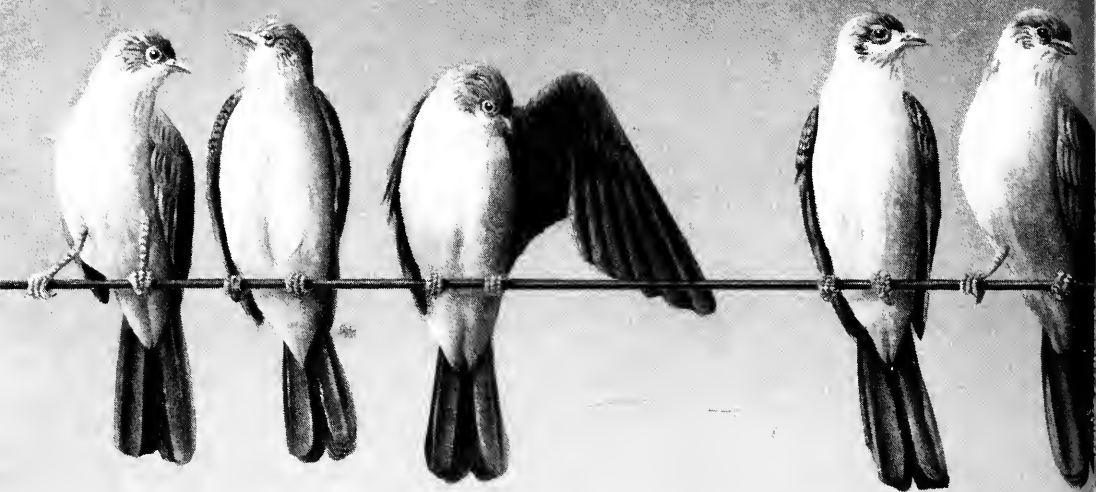
Given complaints about waiting for prescriptions, the study anticipated that seniors would be receptive to bypassing their local pharmacy in favor of mail order. However, of the older patients interviewed, only 13% had ever used mail order and, among the younger patients, only 5% had used mail order. For some reason, the study reported, men had used mail order more often than women (17% versus 10%).

"Most of the people we spoke to, regardless of age, showed no interest in mail order pharmacy," Robbins added. Among those who had tried mail order, about nine out of ten resisted the idea strongly: "Much too slow...The mail is undependable...It's too inconvenient...Would regret the loss of personal contact with the pharmacist."

Schering Report XII emphasized that older patients have special needs and place great emphasis on their interpersonal relationship with the pharmacist.

"To better serve this audience, pharmacists should start by reaffirming their perception of senior patients as, what they really are, patients and not just customers," Robbins said. "They should review their practices and, where needed, retrain themselves and their staff to treat each patient with consideration, courtesy and friendliness. Besides, that's not good business—whether it's a pharmacy or a stationery store."

A booklet summarizing the Schering study is available by writing: Pharmacy Affairs Department, Schering Laboratories, Kenilworth, NJ 07033. •



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DICKINSON'S PHARMACY

by Jim Dickinson

"... to defend S.2605 ... is something that pharmacists must do themselves, and through their associations, as if their future depended on it."

Where are Pharmacy's Friends? "Laugh," the poet Ella Wilcox wrote, "and the world laughs with you; weep, and you weep alone."

As *American Druggist's* September cover story, "Drug Diversion Grows!" showed, pharmacy's long search for a "level playing field" is finding not happy relief, but the loneliness of defeat.

There's no shortage of "friends" when the news is good, and you're riding high. Everyone likes to share all the "warm fuzzies" of a party. It's human nature to avoid the "sharp bites" of somebody's bitter disappointments.

So now an unpleasant fact of life is emerging—as it has before—about the fickleness of supposed "friends," specifically those friends of pharmacy who party in high places.

They are the kind who laugh and cheer when the Gallup poll finds you are the most popular professional, but who are busy elsewhere when predators are at your door.

It took pharmacy 13 years to get its Washington friends to pass, with a little help from the Gallup and other polls in an election year, the 1984 pharmacy crime law. Have pharmacy robberies declined since? When I called the FBI in September to find out, I was told they have no idea—they don't keep statistics on such small stuff.

It took pharmacy only seven years to get its Washington friends to pass—again in an election year—the 1988 Prescription Drug Marketing Act that was supposed to stamp out diversion. But President Reagan signed it only grudgingly as a federal "intrusion" on state powers, and a crippled FDA has seen it ever since among its lowest priorities.

Where are pharmacy's "friends" now? Their party has moved on, leaving pharmacy to weep alone.

But, cheer up—it's another election year. Don't dwell on negatives. We can still have a

good time if we switch to a more positive subject, such as Senator David Pryor's Pharmaceuticals Access and Prudent Purchasing Act (S.2605).

Here pharmacy has a real chance of writing reimbursement equity into federal law, and unlike some of the profession's faint-hearted friends of former efforts, Senator Pryor is a rare and a true friend.

If all this sounds a little cynical so far, it's not really meant to be. Rather, this column is intended to show that if pharmacy relies on its "friends" and its clout as the most-respected profession, you may not be pleased with the results.

Nowhere could this be more important to the future of pharmacy than in Senator Pryor's bill. Unlike the crime bill and the diversion bill, S.2605 has intense, heavily-funded, nationally organized opposition from the pharmaceutical industry and its satellites in medicine.

These other "friends" are also prone to joining the world in laughing with you, but then letting you weep alone. Their well-heeled support for pharmacy clusters around "warm fuzzies"—underwriting of education, hosting of big bashes at conventions, and other positive good things.

That kind of support has not helped survival enterprises for the profession. Such efforts as

This feature is presented on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting open discussion of professional issues in pharmacy. "Dickinson's Pharmacy—The Independent Voice," an 8-page practical monthly newsletter, is available from Ferdic Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPhA accepts no responsibility for the views expressed in "Dickinson's Pharmacy" as they are those of the author and not necessarily those of NCPhA.

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promoting community pharmacy advantages over mail-order to HMOs and self-insured benefits programs could provoke "sharp bites" instead of "warm fuzzies" for any manufacturer bold enough to take sides. Pharmacy has few friends here.

Thus pharmacy has turned to other, equally doubtful "friends" in federal and state legislatures, in the search for legislative relief.

Two such efforts have succeeded on first impressions, but ultimately failed in end results. Now the profession strives in S.2605 to make it third-time lucky.

With the power of pharmacy's heavily concentrated opponents aimed at S.2605, plus the reality of the truism that politics is the "art of the possible" as consummated through compromise, success will depend on pharmacy not diluting its efforts, or delegating to "friends."

The friends pharmacy could rely on to defend S.2605 are, by their track record, not reliable. This is something that pharmacists must do themselves, and through their associations, as if their future depended on it.

Write letters to state congressional delega-

tions and to senators. Phone their district offices. Get their fax numbers and fax them reminders. Tell local radio, TV and newspaper editors about the issue and what discriminatory pricing means to patients who could lose pharmacy services or be exposed to mail-order safety hazards.

Be prepared to argue back when PMA's supporters try to disparage your points. Ask why U.S. patients pay 30%-80% more than Canadian patients do for the same prescription drugs—after taking the different value of the Canadian dollar into account.

Send a donation to the Pharmacy Freedom Fund, 1500 Cienegas, Fort Worth, TX 76112—the unaffiliated "grassroots" organization that is helping S.2605.

If pharmacy fights hard enough for this, the results will speak for themselves—even if S.2605 or something like it does not become law. If nothing else, after the smoke of the battle has cleared, industry will then surely know that pharmacists need to be taken notice of, and policies will surely be adjusted to avoid aggravated bitterness in the future. •

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Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Ceclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Ceclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Ceclor. Such reactions have been reported more

frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.

- Stevens-Johnson syndrome, toxic epidermal necrolysis, and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.
- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertension, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.

Abnormalities in laboratory results of uncertain etiology.

- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
- Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Ceclor and Coumadin concomitantly.
- Abnormal urinalysis; elevations in BUN or serum creatinine.
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THE CAROLINA JOURNAL OF PHARMACY, published monthly at 109 Church Street, Chapel Hill, North Carolina 27516-2502. The number of issues published annually is 12. The annual subscription price for 1990 is \$25.00. The General Business Office of the Publisher is located at 109 Church Street, Chapel Hill, North Carolina 27516-2502.

The names and addresses of the Publisher, Editor and Managing Editor are: Publisher, The North Carolina Pharmaceutical Association, 109 Church Street, Chapel Hill NC 27516-2502; Editor, Alfred H. Mebane III, 109 Church Street, Chapel Hill NC 27516-2502; Managing Editor, Kathryn Kuhn Jefferson, 109 Church Street, Chapel Hill NC 27516-2502.

The owner is The North Carolina Pharmaceutical Association, 109 Church Street, Chapel Hill North Carolina 27516-2502. There are no known bondholders, mortgages or other security holders owning or holding one percent or more of bonds, mortgages or other securities.

The average number of copies of each issue during the preceding 12 months:

A) Total number of copies printed (net press run).....	3330
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D) Free distribution, complimentary and other free copies.....	175
E) Total Distribution.....	3080
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C) Total Paid and/or requested Circulation.....	2915
D) Free distribution, complimentary and other free copies.....	175
E) Total Distribution.....	3090
F) Copies not distributed	
1) Office use, damaged after printing, left over, etc.....	210
2) Return from news agents.....	0
G) Total.....	3300

I certify the statements made by me above are correct and complete.

Alfred H. Mebane III,
Editor

October 9, 1990

ARE YOU SURE YOU WANT TO BE A PHARMACIST?

Presented by Josiah R. Whitehead,
Vice President, Corporate Affairs, Burroughs Wellcome Co.
at the
Campbell University School of Pharmacy Fall Convocation,
Buies Creek, N.C., August 30, 1990

I am sure many of you have been engaged in a little psychological game of will. A time when you've been forced to make a choice, you make it, and another party asks you "Are you sure?" For example, you may be asked to choose which hand being held behind one back is holding the prize you'd like to have. You make your choice and the other party asks "Are you sure that's the choice you want to make?" That person may be simply giving you another chance to make the right choice; or perhaps you've chosen the hand the person did not want you to have, and he or she is trying to trick you into changing your mind.

Well, today, I'd like to pose that question to you about your choice of profession. I'd like to ask you "*Are you sure you want to be a pharmacist?*" I think at this conjecture, it is a pertinent question to ask, because if you really intend to be a pharmacist, there are some challenges and opportunities that come with the territory of which you should be aware. Let me explain by examples.

In a dimly lit downtown Raleigh office sits a slight graying man deep in thought over a stack of complex computer printouts. He has been studying this document for hours, which, by the way, is the state budget. He is trying to help determine how such limited income can be stretched to meet so many urgent needs. He's obviously a deeply caring and generous man. When he isn't in Raleigh serving the people of NC in the State Legislature, you can find him at his more-favored shop—his drugstore in Princeton, NC.

Meet pharmacist and citizen legislator, State Representative Barney Paul Woodard. His acts of generous service to his customers, his community and his state are legendary. He never complains or even acts as though any special thanks or recognition would be due him. Barney Paul exemplifies all the reasons community pharmacists are named year after

year in the Gallup Poll as the most trusted and respected professionals.

Barney Paul would have had a very successful career had he not gone beyond the community pharmacy setting. However, he heard the call to service in the State Legislature and has since balanced the unbelievable, and at times, conflicting demands of being a community pharmacist and a citizen legislator.

If you are sure you want to be a pharmacist, be prepared to answer calls to service beyond your professional training.

A red sports car speeds along a lonely stretch of NC highway. The driver, a handsome squared-jaw man, is deep in thought. He could be thinking about situations in the two community pharmacies he owns. He could be pondering questions which will be coming before the meeting of the NC Board of Pharmacy (NCBP) on which he serves and has chaired. As a matter of fact, there is a meeting of the NCBP to which he is en route this day.

He could be contemplating the increasingly demanding responsibilities he has taken on as first vice president of NARD. Perhaps he is reviewing in his mind the objectives he hopes that the NCBP Task Force can achieve in order to help the profession be more fully appreciated for the value it adds to health care.

Maybe he is being self-indulgent for just a minute, remembering the accolades he recently received as the NC Pharmacist of the Year. He has every right to relax in contented reflection on his wonderful family which includes two sons who are pharmacists. One of them, Joe, was in the charter class of Campbell University School of Pharmacy.

You have just met a multi-dimensional professional, Whit Moose. Successfully operating a third-generation pharmacy in Mt. Pleasant, NC, would be enough for most of us, but not for Whit. He has consistently given back to his profession beyond measure and has been a good enough example to his two sons to as-

sure there will be a fourth-generation Moose pharmacy.

If you are sure you want to be a pharmacist, be prepared to give to your profession more than you think possible, and still have a successful practice.

In a Burroughs Wellcome laboratory at Research Triangle Park, a researcher studies a container of sudsy-looking spheres. Each tiny sphere holds a world of possibilities for medical science. They are called liposomes—spheres within spheres. Liposomes are man-made droplets composed of lipids in the form of concentric spheres. The rings have special properties—outside the walls, water friendly—inside the walls, water averse. This means you could put water-soluble drugs between the rings and water-averse drugs inside the spheres. Therefore, a liposome could carry both an antibody to target a specific tumor, and a drug to attack the tumor cells. Antibodies, drugs, cell-modifying agents, hormones—liposomes may be able to transport them all directly to their target in the human body.

In another laboratory at the same facility, scientists are developing "gene jockeys." In short, they use enzymes to cut and splice pieces of viruses together to make an artificial virus that can carry a piece of DNA into a human cell, in effect, placing a specific gene into a cell. Thus, a man-made virus serves as a shuttle ("jockey") for the gene. While traditional drugs are basically poisons to destroy disease-causing organisms, gene therapy would use the cell itself to attack an invader or correct a deficiency. This is being considered as a possible way to treat Alzheimer's disease.

If you are sure you want to be a pharmacist, be prepared to perhaps continue your education in order to participate in the development of exciting new frontiers, like liposomes and gene jockeys, and to learn how to administer all the new wonders of biomedical research which will be developed in your professional lifetime.

Well over 60% of those entering pharmacy school today are female, as attested to by this audience. This trend of several years' duration is changing the face of the profession. Many have commented on the impact of this phenomenon on the profession, and questioned when and how will the profession change as a result.

I would like to introduce you ladies to just a few of my female friends who are pharmacists and let you know what they have been up to.

Evelyn Timmons, owner of Mountain View Pharmacy in Phoenix, AZ. Evelyn's professional accomplishments are many. She is a past president of her state association and of the American College of Apothecaries. Evelyn is a member of the Board of Directors of the American Counsel on Pharmaceutical Education (ACPE). One of the duties of that body is to accredit schools of pharmacy. Indeed, Evelyn was on an ACPE team which visited Campbell University in the process of accrediting this school of pharmacy.

Marily Rhudy, president-elect of APhA, and a member of the APhA Board of Trustees for six years. Owner of a medical center pharmacy in Topeka, KA, Marily is a mother of seven, including two sets of twins.

Mary Ann Rollins, a chain store pharmacist in Richmond, VA. Mary Ann is one of the most energetic people I've ever known, and is involved in almost anything you can name if it's community or professional service. Professionally, she is a past president of the Virginia Pharmaceutical Association and one of the organizers of an international symposium on the role of women in pharmacy which was held in London, England. Mary Ann was the first woman appointed to the Virginia Board of Pharmacy, and served as president of that Board.

Angel DeAngelo. I could talk about Angel and her accomplishments all day. However, I will just point out a couple of facts. After an innovative career in community pharmacy, she entered academia and became dean of one of the largest schools of pharmacy in the U.S.—Saint John's University. After retiring from the University, she became and still serves as Editorial Director of *U.S. Pharmacist* magazine.

Ginger Lockamy. Our own Ginger from right here in Raleigh, NC. Ginger is married to a very special and successful pharmacist, Al Lockamy, who is past president of the NCPHA and a new member of the State Board of Pharmacy. However, Ginger has been busy making her own mark in pharmacy and was this year named the recipient of the 1990 Bowl of Hygieia Award.

Ladies, if you are sure you want to be a pharmacist, you won't be able to wait for

the profession to adapt to your presence. Like these friends of mine, and many others I could name, you will have to be prepared to be out front taking a leadership role to assure the long-term viability of your chosen profession.

Now let me take you to Washington, D.C. The scene is the White House. The year is 1986. A special ceremony will soon begin involving First Lady Nancy Reagan and pharmacist, John Hasty of Hayes, VA. As he waits for the First Lady to appear, John's thoughts go back to what brought him here on this very special day.

In 1980, within a six-week period, four young people in Hayes, VA, ages 12-33 died as a result of involvement in drug and alcohol abuse. The 12-year old was prostituting herself to purchase drugs for one of her lovers. The community went into shock. This could happen in New York City, but not in Hayes. Someone had to do something. Someone had to help the parents, other members of the community, and young people deal with this new problem.

John Hasty thought, "Who better than me, their community pharmacist. I'm supposed to be the guy who knows the most about drugs, and education has to be the key to controlling this terrible thing." So John went into action. He had never done it before, but he started going out and seeking opportunities to speak to groups all over that part of VA. He spoke to church groups, civic groups, garden clubs, high school classes, elementary school children, junior high students—a total of 30 groups in one year.

As a result of his efforts, others became involved. Other pharmacists in nearby communities took John's lead and became involved in their own communities in helping educate about drug abuse and alcohol abuse. Peer support groups were formed and educational groups went into action and Hayes, VA began dealing effectively with their drug problem.

John is brought back into the present by a tug on his arm by his wife, Pat. He looks up to see a radiant Nancy Reagan enter the room and come to him to thank him on behalf of the people of Hayes and of the nation for his special efforts. On this day, out of 50 nominees, John was selected to receive from Nancy Reagan, a special award for his work in fighting drug abuse in Hayes, VA, and serving as a national role model as how one person can

make a difference. His efforts continue to this day. John retired from his community pharmacy and devotes himself full time to problems of substance abuse on a national basis.

Now if you are sure you want to be a pharmacist, be prepared to be integrated into the fabric of your community. Be prepared to step forward to fill roles you are uniquely qualified for, but could not anticipate being called upon to fill, and along the way, you might be recognized in ways that can be quite surprising.

Today I have tried to portray just a few up-close and personal glimpses of pharmacists I know who are making a difference. Does it help you answer the question, "*Are you sure you want to be a pharmacist?*" Well, I hope your resounding response is and will continue to be, "You bet your life I am sure," because in effect, you are betting much of your life.

In closing, just let me say to you first-year and second-year pharmacy students, be aware that you are building the foundation in these years upon which the rest of your training, and indeed, your entire professional career, will rest. Give it your best, because that foundation has to be absolutely rock solid.

Those of you in third and fourth years, as you complete your clerkships, carefully observe and listen to your preceptors. They have been carefully chosen and they can teach you the *practice of pharmacy*. More importantly, they can show you the *art of pharmacy practice*.

And when you leave this place, be sure to take with you what makes this such a special place—the Christian values that will form the backdrop for your education. Without those Christian values, you cannot hope to achieve full success.

You could not be entering your profession in a more exciting era, when so many tremendous breakthroughs in science will be taking place. The role of the pharmacist is and will continue to be of vital importance in making sure that advances in biomedical science achieve maximum benefits in the patients for whom they are intended. That will be your charge.

Good luck and God bless you. •

PHARMACY CALENDAR**1990**

November 19	NC Board of Pharmacy Reciprocity Hearing, Institute of Pharmacy
November 20	NC Board of Pharmacy Monthly Meeting, Board of Pharmacy
December 2-6	ASHP Midyear Clinical Meeting, Las Vegas, NV
December 9	NCPHA Executive Committee Meeting, Institute of Pharmacy

1991

January 15	Woman's Auxiliary Executive Board Meeting, Institute of Pharmacy
February 8-10	NC Board of Pharmacy Leaders Forum, Mid Pines Resort
March 9-13	138th APhA Annual Meeting, New Orleans, LA
March 21	25th Annual Socio-Economic Seminar, Holiday Inn Four Seasons, Greensboro
May 22-25	111th NCPHA Annual Convention, Winston Salem

SELECTED DRUGS LOSING PATENT PROTECTION IN 1991-95

Year	Drug	Use	Manufacturer	Estimated Sales (in millions)
1991	Procardia	Cardiac Agent	Pfizer	\$228
	Tenormin	Hypotensive	ICI	250
1992	Cardizem	Cardiac Agent	Merrell Dow	300
	Ceclor	Anti-Infective	Eli Lilly	191
	Feldene	Anti-Inflammatory	Pfizer	208
	Seldane	Antihistamine	Merrell Dow	118
1993	Corgard/Corzide	Cardiac Agent	Squibb	115
	Lopressor	Hypotensive	Ciba-Geigy	169
	Naprosyn	NSAID	Syntex	169
	Xanax	Anxiolytic	Upjohn	235
1994	Tagamet	GI Agent	SKF Labs	523
1995	Capoten	Cardiac Agent	Squibb	207
	Zantac	GI Agent	Glaxo	500

Source: Generic Pharmaceutical Association

CORRESPONDENCE COURSE

UNDERSTANDING OTC HOME TESTING PRODUCTS: PART I



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Goals

The goals of this lesson are to:

1. review the scope of home testing products;
2. present an explanation for their growing popularity; and
3. discuss uses and limitations of selected products.

Objectives

At the conclusion of this lesson, participants should be able to:

1. select the uses, limitations, and causes of false-positive and false-negative results for products discussed;
2. choose pathological considerations when specific end points of home testing products are stated; and
3. demonstrate an understanding of specific advice to convey to consumers to assure that the products are used correctly.

Americans desire to take charge of their own health care needs. One subgroup of the explosive self-care movements is home testing products.

By 1987, sales were estimated to exceed \$600 million annually, and were pushing toward \$1 billion by 1990. They are projected to increase by approximately 20 to 25 percent annually, and could exceed \$2 billion by the mid-1990s.

Most home testing products are sold in pharmacies. But supermarkets, department stores, health food outlets, and mail order businesses are rapidly eroding into this extremely fertile market.

This series of lessons is aimed at providing information that pharmacists can convey to consumers. There is no doubt that pharmacists are uniquely qualified to inform consumers on these products. Doing so may help prevent or at least minimize the impact of nonpharmacy outlets on this market.

The topics of diabetes urinalysis and blood glucose tests, pregnancy and ovulation kits, and fecal occult blood testing products have been covered in detail in other lessons in this series. In this article, other selected home testing products will be reviewed, including those for urine protein, pH, blood, bilirubin,

Table 1
Trends that favor development of home testing products

Advancements in biochemistry and biotechnology that have simplified testing procedures
Increased convenience and time savings for consumers
Increased medical costs; government cost-containing programs encourage earlier dismissal of patients from hospitals to their own homes
Aging population with its increasingly larger market for products
Regulatory environment that currently favors self-care product development

urobilinogen, and phenylketones. Remaining miscellaneous products, and projections for the future will be discussed in Part II.

Background

In addition to the aforementioned tests, consumers can currently select OTC products to detect or monitor dozens of substances in their urine. They can confirm the status of diseases including asthma, urinary tract infections, and blood pressure. They can check their vision and hearing, and perform other important tests.

Home testing products have experienced a recent explosive growth and will continue to increase in number and importance (Table 1). However, not all medical practitioners view the self-use of home testing products to be in the best interest of their patients. Some are concerned about the seemingly uncontrolled development of home testing products. They are concerned with the danger of test results being misinterpreted. Following this thinking, they worry that patients may become too reliant on self-diagnosis and self-treatment, and will not seek proper diagnosis by a trained professional. This may worsen a serious disease which could have been prevented or lessened.

Other physicians feel that home testing agents enable people to become more intimately involved in their own health care. By doing so, they take better care of themselves and comply more completely with professional advice.

Home testing product manufacturers state that these items are not intended to replace

professional diagnosis or care. Rather, they are to be used by consumers who wish to recognize certain medical conditions early so that they can then consult a physician. Manufacturers state that the tests help identify a condition, but do not provide sufficient information that can be used without physician interpretation. They are also intended to enhance compliance with physicians' prescribed regimens.

A medical marketing group has reported that most people who use home testing products do not have a physician they rely on regularly before using the products. This group suggests that after users conduct the tests and obtain results, they seek a physician for assistance. If this concept is correct, then these products may actually promote visits to physicians for proper health care.

OTC Urinalysis Tests

Protein. Protein is not readily excreted by the kidney of healthy patients and urine contains only a trace quantity. In fact, normal urine should show a protein reading of zero. Increased amounts of protein in the urine indicate the probability of renal disease.

None of the current OTC urine protein tests differentiate between the types of protein. Most often it will be albumin. However, any positive test for urine protein should be considered pathologic until proven otherwise.

Urinary testing for protein may be the most important initial test for detecting renal disease. Diseases which should be considered when high levels of protein in urine are found are summarized in Table 2.

Table 2
Diseases that should be considered when protein is found in the urine

Acute glomerulonephritis	Chronic renal failure
Chronic glomerulonephritis	Acute renal failure
Intercapillary glomerulosclerosis	Obstructive uropathy
Malignant nephrosclerosis	Acute pyelonephritis
Scleroderma of the kidney	Chronic pyelonephritis
Lipoid nephrosis	Papillary necrosis
Systemic lupus erythematosus	Periarteritis
Renal arterial occlusion	Wilms' tumor
Renal vein thrombosis	Grawitz's tumor
Eclampsia	Amyloid kidney
Preeclampsia	Kimmelstiel-Wilson disease
Polycystic kidney	Nephrosis
Hereditary nephritis	Multiple myeloma
Angiokeratoma corpus diffusum	Sickle cell nephropathy
Hypercalcemic nephropathy	Radiation nephritis
Gouty kidney	Fanconi syndrome
Nephrolithiasis	

There are currently two basic types of tests for urine protein: turbidimetric and colorimetric methods. While both are still used, colorimetric tests are more popular and provide the basis for most OTC products.

Colorimetric tests are founded on the "protein error of indicators" concept. If an indicator is added to a solution at a certain pH, a specific color will be noted. If protein is then added to the solution while maintaining the pH value, the color will change because of the presence of the protein. In other words, the presence of protein indicates an "error" in the indicator's usual behavior.

The indicator contained in most commonly used urine protein tests is tetrabromophenol blue. It changes from yellow to blue when protein is present. Albustix® is a commercial product that uses colorimetric changes to detect protein. It uses the indicator mentioned above and a citrate buffer to maintain pH 3.

This test has been shown to be quite accurate and has few limitations. False positive tests are noted in highly alkaline urine. Therefore, concurrent ingestion of sodium bicarbonate, thiazide diuretics or carbonic anhydrase inhibitors (e.g., Diamox) can interfere with test results. Additionally, quaternary ammonium salts can cause a false positive test. This can occur when benzalkonium chlo-

ride is used to clean containers for urine collection when they are not properly rinsed. Consumers should be advised to rinse glassware completely and carefully after washing, and to avoid using bactericidal agents that contain quaternary ammonium salts to clean collection glassware.

Urinary pH. Determining the pH of urine is an important diagnostic test for identifying a number of diseases including those stated in Table 3. It is also a normal part of many routine urinalyses during physical examination. The PH reflects the amount of acidic or alkaline salts which are passed with the urine. Normal

Table 3
Diseases detected by alteration of urinary pH

Renal tubular acidosis
Urinary tract infections
Renal tubular alkalosis
Fanconi syndrome
Respiratory acidosis
Respiratory alkalosis
Metabolic acidosis
Metabolic alkalosis

urine has a pH range of 4.8 to 8.5 (average pH is 5.5). In severe ketosis, however, urine pH may drop to below 4.8, and with urinary tract infections, may rise to 9 or higher.

Substances that are primarily responsible for maintaining proper urinary pH include potassium and sodium mono- and dihydrogen phosphates, ammonium salts, sodium bicarbonate, sodium citrate, and carbonic acid. A number of other substances also contribute, but to lesser degree.

When large quantities of water are ingested, urinary pH tends to remain near neutral because the kidney does not have time to perform its pH-regulatory functions. Patients testing urine pH to monitor a disease should be advised to check it at the same time each day and avoid drinking large quantities of fluid for several hours preceding the test.

Several testing methods are available for determining urinary pH. Litmus paper tells whether urine is acid or alkaline. It is not specific enough for denoting the exact pH value. Nitrazine paper has a limited pH range and must be correlated to a color chart when used with urine. The most convenient measurement for urine pH is the dip-and-read pH indicator strips that measure urinary values ranging from 5 to 9. These employ two indicators: methyl red and bromthymol blue.

Used alone, urinary pH determination has little clinical significance because of normal fluctuation throughout the day. However, when combined with other tests or specific symptoms, it provides a valuable aid to confirm or deny the presence of specific pathology. If an individual has marked clinical symptoms of acidosis, for example, but shows a urinary pH of 6 to 7, a diagnosis of acidosis is not valid. With symptoms of acidosis and a urinary pH of 3.5 to 4, the chance that this is present is much more probable.

Another important reason to determine urinary pH is to assist in management of certain diseases. In the presence of some urinary tract infections, urine should be acidic. This is especially true when invading bacteria are urea-splitting. To assure maximum effect from drugs such as methenamine salts (e.g., Mandelamine, Urex), urine must be acidic. With the oxyquinolines (e.g., Noroxin, Cipro) urinary pH is not a factor.

When treating renal stones, an acidic media should be maintained to ensure maximal solubility of the causative chemicals. These include stones caused by the deposition of calcium phosphate, magnesium ammonium phosphate and calcium carbonate. Treatment of stones consisting of uric acid and ureates, calcium oxalate, and cysteine require that an alkaline urine be maintained.

When treating drug overdoses of ionizable drugs, excretion may be enhanced by maintaining an acidic or alkaline urine. Salicylates and barbiturates are excreted from the body in greater amount when urine is alkaline. Amphetamine is excreted in greater amount when urine is acidic.

To properly perform urinary pH tests, it is important that urine be collected in clean containers and tested immediately upon voiding. When urine stands for several hours, bacteria may convert urea which is neutral to alkaline ammonium salts, and a false alkaline reading results. Other times, bacteria may grow in standing urine to produce an acidic pH.

When using a combination strip test for determining pH, consumers should be advised that the drop of urine remaining on the strip should be removed by touching it to the side of the collection container before reading. This prevents the "run-over" phenomenon, that is, of washing reagents from one area of the stick onto the pH area which can significantly alter the pH reading. It is especially significant with alkaline urine, since the area around the pH test portion of the strip is acidic.

Urinary Blood, Hemoglobin, and Myoglobin. The presence of blood, hemoglobin or myoglobin in urine may result from a number of diseases (Table 4). Important terminology that relates to finding these substances in urine follows.

Gross blood is visible to the naked eye. It may cause a smokey appearance in the urine if present in low concentration, or darker red color if present in large amounts. **Occult (hidden) blood** is not visible to the unaided eye. Detection of occult blood depends upon chemical reactions in which the peroxidase-like activity of hemoglobin is seen by a change in color with guaiac.

Hematuria refers to the presence of intact blood cells in urine from renal disease or

bleeding into the urinary tract from another area of the body. The presence of hemoglobin in urine implies hematuria.

Hemoglobinuria results from hemolysis of blood cells within the renal tubules, discharging hemoglobin into the urine. Infection and immunologic reactions are the most frequent causes. Ingestion of toxic chemicals is another cause.

Myoglobinuria refers to the presence of myoglobin in urine. Myoglobin is the oxygen-carrying component of muscle. It may appear with muscle-wasting disease or severe trauma. Myoglobin is frequently present in the urine of persons involved in contact sports, following myocardial infarction, and during renal failure.

OTC testing products can give a positive reading for all three substances. Since each has its own pathologic significance, careful microscopic examination and tests in a clinical laboratory are essential to completely evaluate the situation.

A stick-test product for blood in urine (Hemastix®) uses cumene hydroperoxide and orthotolidine as the indicator. The stick is immersed in urine, removed, and then compared to a color chart after 30 seconds.

Urinary Bilirubin and Urobilinogen. Normally urine is free of bilirubin. It is excreted with bile from the liver and gallbladder into the small intestine after conjugation as a mono- or diglucuronide. Conjugated bilirubin forms the basis for urobilinogen, which is manufactured within the intestine. In liver damage or inflammation, excess bilirubin may accumulate in the blood and be excreted into the urine. Such damage may occur from infection (e.g., hepatitis), hepatotoxic chemicals, or in biliary obstruction. It also results from hemolytic jaundice wherein excessive hemoglobin is destroyed.

A convenient test for bilirubin involves a diazo dye test called Ictotest®. Urine is added to an asbestos cellulose mat. An Ictotest® tablet containing the stable diazonium salt is placed on the mat. If a purple color appears after a small quantity of water/urine is added to the tablet, bilirubin is present. The limitation to this test is that results are qualitative, not quantitative, for bilirubin.

In contrast, normal urine contains urobilinogen. It is formed in the intestine by

Table 4
Diseases detected when blood, hemoglobin, or myoglobin is present in urine

Acute and chronic pyelonephritis
Papillary necrosis
Acute and chronic renal failure
Nephrolithiasis
Eclampsia and preeclampsia
Lipoid nephrosis
Renal vein thrombosis
Polycystic kidney
Nephritis and nephrosis
Amyloid kidney
Wilms' tumor
Intercapillary glomerulosclerosis
Scleroderma of the kidney
Systemic lupus erythematosus
Angioseratoma corpus diffusum
Hypercalcemic nephropathy
Obstructive uropathy
Multiple myeloma
Sickle cell nephropathy
Acute and chronic glomerulonephritis
Malignant nephrosclerosis
Periarteritis
Fanconi syndrome
Kimmelsteil-Wilson syndrome
Renal arterial occlusion

action of bacteria on bilirubin. It is soluble and a portion is absorbed from the intestine into the blood where it is excreted into the urine. It is also recycled to the liver and secreted from the body back into the intestine through the gallbladder. From there, it can once again be reabsorbed or excreted with feces.

The quantity of urobilinogen formed in the body is dependent on the amount of bilirubin excreted with bile into the intestine. When large amounts are excreted, increased urobilinogen is formed. When bilirubin excretion is decreased, such as in certain liver disease, urobilinogen production is likewise lowered. Broad-spectrum antibiotics may reduce bilirubin conversion to urobilinogen by reducing the number of intestinal bacteria. Also, when liver capacity for secreting urobilinogen into the intestine is limited, more will be excreted in urine. If obstruction of the biliary system limits the amount of

bilirubin that is transported to the intestine, less urobilinogen is formed. Urinary urobilinogen is also increased in hemolytic jaundice and has been reported to occur when urine is alkaline.

The strip test for detecting urinary urobilinogen is Urobilistix®. The test used p-dimethylaminobenzaldehyde buffered to an acidic pH. Sixty seconds after the strip is dipped into a urine sample, the color is compared to a standard chart.

A controversy exists concerning correct time of day to obtain the specimen for testing urinary urobilinogen. Some recommend that testing be done between 2 p.m. to 4 p.m.; others argue that any diurnal (i.e., biological variation) pattern in urobilinogen excretion is insignificant. Most agree that urine should be tested approximately the same time each day, and that the sample be kept out of bright sunlight because of the instability of urobilinogen.

Phenylketonuria. A home testing product called Phenistix® detects the presence of phenylketones in urine. These by-products of normal metabolism are present in the urine in small amounts. However, in persons with an inborn error of metabolism called phenylketonuria (PKU), excessive amounts are transferred to the urine and excreted. The disease is easy to screen for, and relatively easy to treat.

Persons with phenylketonuria lack sufficient phenylalanine hydroxylase. Thus, phenylalanine is not adequately metabolized and blood levels increase. This in turn can lead to brain damage.

It is important to note that phenylalanine is a by-product of metabolism of aspartame (Equal®-Nutrasweet®). Individuals with PKU should avoid foods and drinks containing aspartame; a warning to this effect appears on the labeling of all food and drug products that use aspartame as a sweetener. There is no evidence that aspartame is dangerous to others.

The dip-and-read strip, Phenistix®, contains ferric ammonium sulfate and cyclohexylsulfamic acid as acidifier. Magnesium ions are present to prevent interference of urinary phosphates with the ferric ions. Phenistix® is also useful for screening of toxic substances listed in Table 5.

Elevated urinary phenylketones cannot be

Table 5
Examples of substances detected by Phenistix®

Acetoacetic acid
Aminosalicilic acid⁺
Bilirubin
Cyanates
Homogentisic acid
Maple syrup disease
Melanin
Phenothiazines
Phenylpyruvic acid
Pyruvic acid
Salicylates

accurately measured until 4 to 6 weeks following birth. High blood levels can be measured within three days after birth. Newborns are routinely tested for this before they leave the hospital. Positive results are referred to the pediatrician for proper therapy. The urine test must be performed on fresh samples of urine which must be acidic to avoid bacterial conversion of ferric ions to ferric hydroxide. This would create an orange color and interfere with PKU test results.

Part II

This topic will be concluded in Part II. In that article, additional products will be discussed. Also, specific advice to convey to consumers using these products will be summarized. •

EARL H. TATE

eighty-seven, long-time mayor of Lenoir and former president of the North Carolina Pharmaceutical Association, died October 2, 1990. Tate served as mayor for 12 terms and also served in the North Carolina General Assembly. A 1925 graduate of the UNC School of Pharmacy, he was president of Lenoir Drug Company from 1932 to 1970 when he sold it. He was member on the N.C. Medical Care Commission, the N.C. Board of Health, and the N.C. State Retirement Board.

CORRESPONDENCE COURSE QUIZ

Home Testing Products: Part I

1. Of the following, which substances are NOT readily excreted in urine by the kidney?
 - a. Acids
 - b. Protein
 - c. Sodium
 - d. Urobilinogen
2. In case of overdose with salicylates, renal excretion is enhanced by making the urine:
 - a. acidic.
 - b. alkaline.
3. The term that refers to the presence of intact blood cells in urine is:
 - a. hematuria.
 - b. occult blood.
 - c. hemoglobinuria.
 - d. myoglobinuria.
4. Increased excretion of albumin is most likely indicative of:
 - a. coronary disease.
 - b. hepatic disease.
 - c. mental disease.
 - d. renal disease.
5. The action of which of the following urinary anti-infectives is LEAST likely to be inhibited by an alkaline urine?
 - a. Methenamine salts
 - b. Mandelamine
 - c. Noroxin
 - d. Urex
6. The substance tested for in urine that is formed in the intestine by action of bacteria on bilirubin is:
 - a. albumnin.
 - b. hemobilinogen.
 - c. phenylketones.
 - d. urobilinogen.
7. The test strips that are yellow when negative and blue when positive, and which contain a citrate buffer to maintain pH at 3 is:
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8. Consumers purchasing a combination strip test should be advised to remove the first drop of urine by touching it to the side of the container to prevent the "runover" phenomenon when the strip contains an area to test for:
 - a. blood.
 - b. glucose.
 - c. pH.
 - d. sodium.
9. Patients with phenylketonuria should be warned against ingestion of food, drugs, or drink that contains which of the following substances?
 - a. Aspartame
 - b. Phenylpropanolamine
 - c. Sugar
 - d. Tartrazine
10. The average pH of the urine is:
 - a. 3.5.
 - b. 5.5.
 - c. 7.5.
 - d. 9.5.

CE form on next page.



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2. a b
3. a b c d

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7. a b c d
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10. a b c d

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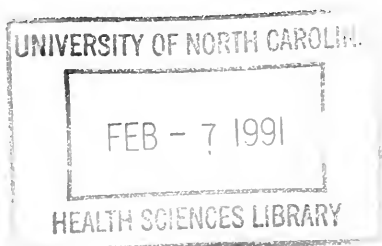
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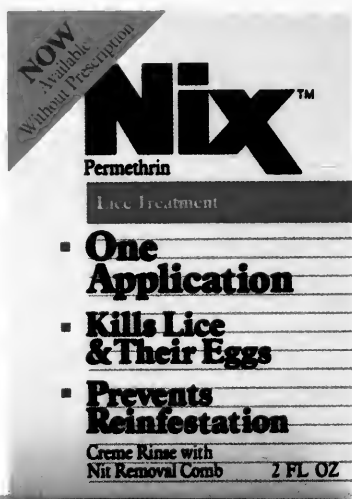
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(USPS 091-280)

DECEMBER 1990

VOLUME 70

NUMBER 12

ISSN 0528-1725

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The Carolina Journal of Pharmacy is published monthly by the North Carolina Pharmaceutical Association, P.O. Box 151, Chapel Hill, NC 27514. The *Journal* is provided to NCPHA members through allocation of annual dues. Subscription rate to non-pharmacists is \$25.00 (continental U.S.). Overseas rates on request. Second class postage paid at Chapel Hill, NC.



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THE PRESIDENT'S PAGE

J. Frank Burton
NCPHA President

"Professional Meetings Yield Professional Benefits"

As President of the North Carolina Pharmaceutical Association, I am called on to attend many meetings, programs, and other pharmacy related functions throughout the state, as well as several regional and national conferences and conventions. As those of you know who share my situation of owning an independent community pharmacy where you are also the only full-time pharmacist, it is not always an easy matter to arrange relief pharmacist coverage, especially for those meetings that require several days absence from the store in order to attend. However, I have been fortunate to have a very capable and flexible part-time pharmacist on my staff who has often rearranged her schedule to accommodate my NCPHA commitments, and I want to take this opportunity to thank her for that.

My most recent pharmacy pilgrimage was to attend the National Association of Retail Druggists' (NARD) 92nd Annual Convention and Trade Exposition in Nashville, TN, October 21-25. I have been a member of NARD since 1978, but for one reason or another had never attended their annual convention. I now know that I have been missing one of the biggest and best annual national meetings held by any professional association in this country!

The continuing education offerings were many and varied. The opportunities for networking and professional interaction were widely available and well organized. The social functions were extremely well done. The facilities (the Opryland Hotel & Convention Center) were magnificent. The business sessions were both informative and entertaining. And the trade exposition that lasted for three full days was the best I have ever attended.

The continuing education programs were offered in four different workshop tracts: Pharmacy Management, Pharmacy Care, Professional Development, and Home Healthcare/Long Term Care. All of the pro-



grams in these categories, as well as the four Symposia held in addition to the "track" programs, were presented by well prepared and qualified speakers, and I came away with much useful information for a community pharmacy practitioner. It was especially helpful that there were no restrictions on jumping from one track to another, as there were several programs outside the track I had registered for that I also attended because they sounded interesting. I would certainly recommend the NARD Convention to all pharmacists, but especially to independent community pharmacists, as one meeting worth making the effort to attend.

One of the benefits of your NCPHA officers and staff being able to attend well run meetings such as NARD's and APhA's annual conventions is the knowledge gained about programs and speakers that were well received by attendees. This information, as well as ideas about the best times to schedule certain events such as receptions and activities for spouses, becomes invaluable when we are planning our various C.E. programs and the NCPHA Annual Convention. It also enables us to learn ways we can improve on the professional services and benefits offered to NCPHA members. And while it is Association policy to cover certain expenses such as registration fees, travel, and accommodations for selected officers and staff for selected meetings, I can assure you that any funds spent for attendance at these meetings, be it NCPHA or personal resources, is money well spent! Plan to come to our 111th Annual Convention in Winston-Salem May 22-25, 1991, and see why! •

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EDITOR'S NOTE

Introducing the 1990 Pharmaceutical Directory ...

The annual Pharmaceutical Directory, beginning on page 7, is provided to you on behalf of the North Carolina Pharmaceutical Association (NCPhA). Now in its third year of publication, the Pharmaceutical Directory is a list of frequently requested phone numbers and addresses for national, state, and local pharmacy organizations, health-care affiliates, third party programs, and federal and state government offices.

Considerable time and effort was expended by our editorial staff to prepare the Pharmaceutical Directory. While every effort was made to make it as comprehensive as possible, it is by no means complete. If you feel we have overlooked an important listing, please let us know so that we might consider adding it to our directory next year.

We would also appreciate your help if you would notify us of any incorrect listings or any changes in a listing when they occur—such as a change in officers for your local pharmacy association. You may do so by contacting the NCPhA in writing to: NCPhA, P.O. Box 151, Chapel Hill, NC 27514-0151 or by calling: 800-852-7343 (in NC) or 919-967-2237.

We suggest that you tear out the Pharmaceutical Directory and place it in a readily accessible location at your work place.

The NCPhA hopes that you enjoy this 1990 Pharmaceutical Directory. We are working harder to serve you better!

Kathryn Kuhn Jefferson
Managing Editor, *The Carolina Journal of Pharmacy*
Director of Professional Affairs, NCPhA

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January 7	NCPHA Endowment Fund Board Meeting, Institute of Pharmacy
January 13	Editorial Advisory Board Meeting, Institute of Pharmacy
January 15	Woman's Auxiliary Executive Board Meeting, Institute of Pharmacy
January 21-22	NC Board of Pharmacy Licensure Exam
Jan. 31- Feb. 1	NCSHP Winter Meeting, Raleigh
February 8-10	NC Board of Pharmacy Leaders Forum, Mid Pines
February 15	UNC School of Pharmacy Career Day
March 9-13	APhA 138th Annual Meeting, New Orleans, LA
March 17-23	National Poison Prevention Week
March 21	25th Annual Socio-Economic Seminar, Greensboro
April 6	Parents Day, Campbell University
April 21-23	National Council on Patient Information & Education (NCPIE) 8th Annual Conference, Washington, DC
April 21-23	NARD's 23rd Annual Conference on National Legislation and Public Affairs, Washington, DC
May 12	UNC School of Pharmacy Graduation
May 13	Campbell School of Pharmacy Graduation
May 19-22	NARD Expo, Reno, NV
May 22-25	NCPHA 111th Annual Convention, Winston-Salem
May 26	1991 Management Seminar, Winston-Salem
June 2-6	ASHP Annual Meeting, San Diego, CA
June 24-25	NC Board of Pharmacy Licensure Exam
August 29	Campbell University School of Pharmacy Fall Convocation
Sept. 14-15	6th Annual Pharmacy Practice Seminar, Wilmington
Oct. 2-3	NCSHP Fall Seminar, Greensboro
Oct. 19-26	Pharmacy Week
Oct. 27-31	NARD Annual Meeting, Baltimore, MD
December 8-12	ASHP Midyear Clinical Meeting, New Orleans, LA

APhA

1992	Annual Meeting, San Diego, CA	March 14-18
1993	Annual Meeting, Dallas, TX	March 20-24

NARD

1992	Annual Meeting, Seattle, WA	October 25-29
1992	Expo, New Orleans, LA	May 27-30
1993	Annual Meeting, Indianapolis, IN	October 24-28

ASHP

1992	Annual Meeting, Washington, DC	May 31-June 4
1992	Midyear Clinical Meeting, Orlando, FL	December 6-10

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DICKINSON'S PHARMACY

"Are pharmacists today more interested in a 10% pay hike than they are in new ethical risks?"

Ethics in Pharmacy. According to a study by the Michael Josephson Institute in Los Angeles, the percentage of people in the 18-30 age bracket who are willing to cheat has doubled in the last 10 years.

A majority in this age group, the study said, lives by the "IDI" principle—"I Deserve It"—or, put another way, they are willing to do "whatever it takes" to reach a given objective.

That's a terrible ethical standard for inspectors of nuclear power plants, or airplane maintenance engineers, to have.

What about pharmacists, though? Increasingly, new pharmacists and their technicians (i.e., those in the 18-30 age group) are employees and as such, are usually expected to do as they are told.

Suppose the boss sets efficiency/productivity goals that, without actually saying so out loud, require short cuts as the only feasible means of meeting those goals?

Suppose, as was recently testified to in Texas by "disgruntled former employees" (to quote a Medcopress comment in September), the manager's policy in all practicality requires—without ever saying so in words—that a misfill go unreported?

Suppose the prescriptions says in handwriting "Dispense As Written" and the pharmacist: (1) Knows it is a wide therapeutic range drug with no feasible bioequivalency issues; (2) Does not have the brand in stock; (3) Knows the prescriber's office is closed; and (4) Can't reach the patient (the prescription is being picked up by a family member two minutes before the pharmacy's closing time)?

These are but a few of the myriad ethical dilemmas that pharmacists face all the time.

Fortunately, the profession's high standing in all public opinion polls shows that so far, pharmacists have been doing an outstanding job of meeting all ethical challenges.

But it would be arrogant—and foolish in the extreme—to rest on these laurels, seemingly secure in the assumption that some kind of ethical inoculation is received in pharmacy schools.

For but one example, the recent rash of protests by employee pharmacists (whether "disgruntled" or not) in chain and mail-order settings, is evidence that pharmacists are being asked to do more than they are comfortable with. By definition, that obviously reflects the existence of fertile grounds for ethical problems.

How "immunized" can pharmacists—as opposed to nuclear power plant inspectors and airplane engineers—remain to economic pressure?

In San Antonio recently, a major new mail-order facility advertised 25 pharmacist openings at \$41,000-plus a year (the area average is in the mid- to high-\$30,000s)—175 pharmacists applied.

Continued on page 22

This feature is written and presented by Jim Dickinson on a grant from "Dickinson's Pharmacy—The Independent Voice," in the interest of promoting open discussion of professional issues in pharmacy. "Dickinson's Pharmacy—The Independent Voice," an 8-page practical monthly newsletter, is available from Ferdic Inc., P.O. Box 848, Morgantown, WV 26507-0848 at an annual subscription fee of \$45. NCPHA accepts no responsibility for the views expressed in "Dickinson's Pharmacy" as they are those of the author and not necessarily those of NCPHA.

**Where there's smoke...
there may be bronchitis**



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Am Fam Phys 1987;36:133-140

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Brief Summary.

Consult the package literature for prescribing information.

Indication: Lower respiratory infections, including pneumonia, caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Streptococcus pyogenes* (group A β -hemolytic streptococci).

Contraindication: Known allergy to cephalosporins.
Warnings: CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

Precautions:

- Discontinue Cefclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- Cefclor should be administered with caution in the presence of markedly impaired renal function. Although dosage adjustments in moderate to severe renal impairment are usually not required, careful clinical observation and laboratory studies should be made.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Cefclor penetrates mother's milk. Exercise caution in prescribing for these patients.

Adverse Reactions: (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Hypersensitivity reactions have been reported in about 1.5% of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions have been reported with the use of Cefclor. These are characterized by findings of erythema multiforme, rashes, and other skin manifestations accompanied by arthritis/arthralgia, with or without fever, and differ from classic serum sickness in that there is infrequently associated lymphadenopathy and proteinuria, no circulating immune complexes, and no evidence to date of sequelae of the reaction. While further investigation is ongoing, serum-sickness-like reactions appear to be due to hypersensitivity and more often occur during or following a second (or subsequent) course of therapy with Cefclor. Such reactions have been reported more

frequently in children than in adults with an overall occurrence ranging from 1 in 200 (0.5%) in one focused trial to 2 in 8,346 (0.024%) in overall clinical trials (with an incidence in children in clinical trials of 0.055%) to 1 in 38,000 (0.003%) in spontaneous event reports. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy; occasionally these reactions have resulted in hospitalization, usually of short duration (median hospitalization = two to three days, based on postmarketing surveillance studies). In those requiring hospitalization, the symptoms have ranged from mild to severe at the time of admission with more of the severe reactions occurring in children. Antihistamines and glucocorticoids appear to enhance resolution of the signs and symptoms. No serious sequelae have been reported.

- Stevens-Johnson syndrome, toxic epidermal necrolysis, and anaphylaxis have been reported rarely. Anaphylaxis may be more common in patients with a history of penicillin allergy.
- Gastrointestinal (mostly diarrhea): 2.5%
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- As with some penicillins and some other cephalosporins, transient hepatitis and cholestatic jaundice have been reported rarely.
- Rarely, reversible hyperactivity, nervousness, insomnia, confusion, hypertonia, dizziness, and somnolence have been reported.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1% and, rarely, thrombocytopenia and reversible interstitial nephritis.

Abnormalities in laboratory results of uncertain etiology.

- Slight elevations in hepatic enzymes.
- Transient lymphocytosis, leukopenia, and, rarely, hemolytic anemia and reversible neutropenia.
- Rare reports of increased prothrombin time with or without clinical bleeding in patients receiving Cefclor and Coumadin concomitantly.
- Abnormal urinalysis; elevations in BUN or serum creatinine.
- Positive direct Coombs' test.
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest® tablets but not with Tes-Tape® (glucose enzymatic test strip, Lilly).

PA 8791 AMP

[021490LRI]

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.



Eli Lilly Industries, Inc.
Carolina, Puerto Rico 00630
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Indianapolis, Indiana 46285

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DICKINSON'S PHARMACY

Continued from page 19

Are pharmacists today more interested in a 10% pay hike than they are in new ethical risks? Of course, considerations other than money enter the picture; work conditions are potentially even more compelling. The mail-order job offered 7:30 a.m.-3:30 p.m. hours, five days a week and no weekend work except by volunteers.

Is the "IDI syndrome" part of the rush to such superficially attractive employment? As the Michael Josephson study asks—what else can society expect?

For years, other research has been showing that the caliber of students sent to colleges of all kinds (including pharmacy schools) by high schools is depressingly low.

In September, a U.S. Education Department report found that fewer than 10% of the nation's high school seniors have the skills necessary to perform demanding jobs or do college work. Only 6% could solve multistep math problems and use basic algebra, and only 5% could synthesize and learn from specialized reading materials.

While the admission standards to the nation's pharmacy schools are high, we would be kidding ourselves if we assumed that only the ethical best 5% of high school graduates get into pharmacy school.

I recently asked a freshman pharmacy class how many thought that in life "you are what you read"? In a roomful of 40 students, only two raised their hands, and they were very embarrassed to do so.

Yet a thoughtful reading of the classical works of at least some of the great philosophers, ethicists and poets is an essential underpinning to the acquisition of ethical values.

Something is wrong if one intellectually accepts as true the Eighth Commandment, but then proceeds thoughtlessly to rip-off Medicaid. Ethics are not selective, nor learned by rote from a short list.

My American Heritage Dictionary defines ethics as: "The study of the general nature of morals and of the specific moral choices to be made by the individual in his relationship with others; the philosophy of morals...The moral sciences as a whole, including moral philosophy and customary, civil and religious law. The rules or standards governing the conduct of the members of a profession..."

Clearly, ethics are the product of study and learning, and they continue to function as the intellectual oversight of our actions. Perhaps they should be a part of continuing education.

They are clearly key to pharmacy's high place in the public esteem as the most trusted profession. It would be tragic if rising economic pressures in a world governed not by ethics but by the "IDI syndrome" were to cost pharmacy its precious heritage. •

Pharmacy in the
Decade of *90's*
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203 N. Jackson St.
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Bear Drugs of Elizabeth City, Inc. (T/O)
University Plaza S/C
1313 D North Rd.
Elizabeth City, NC

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Comprehensive Infusions, Inc. (LSP)
3325 Washburn Ave.
Charlotte, NC

Medical Center Phcy. of Wilmington, Inc.
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Wilmington, NC

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1673 Owen Dr.
Fayetteville, NC

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605 S. Church St.
Burlington, NC

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Raleigh, NC

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509 West Whitaker Mill Rd.
Raleigh, NC

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*LSP = Limited Service Permit
T/O = Transfer of Ownership*



N.C. Board of Pharmacy members grade examinations following the October 25, 1990 exam held at the Durham Hilton. *From left:* Jack Watts, Burlington; Bill Randall, Lillington; Harold Day, Spruce Pine; and Whit Moose, Mt. Pleasant. In addition to being Board members, these pharmacists are all past NCPHA Pharmacists of the Year! *Photo supplied by the NC Board of Pharmacy*

BUNGLES

The following persons were inadvertently omitted from the Licensed By Examination list that appeared in the September issue of *The Carolina Journal of Pharmacy*. These persons were licensed by the NC Board of Pharmacy on June 25, 1990 and should have been included in the first publication of the list.

Kimberly Charlotte Adcock, *Waynesville*
Norman DeWitt Banks, *Williamston*
John Harlen Higgins, *Forest City*
Cynthia Lynn Robinson, *Shallotte*
Rafael Miranda-Massari, *Carrboro*

In the October issue of *The Journal* the trade name change for Merck's product, omeprazole, should have been listed as PRILOSEC®. The name of this product was formerly LOSEC®. •

CORRESPONDENCE COURSE

UNDERSTANDING OTC HOME TESTING PRODUCTS: PART II



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Cincinnati, Ohio



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Professor of Pharmacology and
Toxicology
Ohio Northern University
Ada, Ohio

Goals

The goals of this lesson are to:

1. review the properties of selected home testing products;
2. discuss the mechanism of reaction of these products, and their uses and limitations; and
3. present important consumer information that assures these products will be used correctly.

Objectives

At the conclusion of this lesson, participants should be able to:

1. select the mechanism of reaction, uses, limitations, and causes of false-positive and false-negative results for products discussed;
2. choose the correct pathologic consideration when specific end points of home testing products are stated; and
3. demonstrate an understanding of specific advice to convey to consumers to assure that the products are used correctly.

In Part I of this series, the overall scope of selected home testing products and reasons for their growing popularity were discussed.

Featured products included urinalysis tests for protein, pH, blood, bilirubin, urobilinogen, and phenylketones.

In this lesson, the remaining miscellaneous products and projections for the future of home testing products will be discussed. Kits to test for ovulation, pregnancy, urine glucose and ketones, blood glucose, and occult fecal blood were discussed in other lessons.

Background

Not too long ago, the fever thermometer was about the only testing device available to detect an illness at home. Americans who wished to be self-reliant had no reliable methods to assess possible medical conditions. Of course, they could visit a physician who diagnosed their afflictions and recommended proper treatment.

In recent years, Americans reaffirmed their determination to be more reliant on their own self-care, and less dependent on organized medical assistance. Part of this interest is due to increasing financial burdens and fixed incomes that do not permit unlimited visits to

health care professionals.

Overall, manufacturers are making it easier for us to take care of ourselves by providing products that are relatively easy to use, give reliable and reproducible results, and are inexpensive as compared to the cost of clinical diagnosis.

Home testing products are reliable. But they are not foolproof! They may show positive results when nothing is wrong (false-positive response). They may fail to detect a condition when it actually exists (false-negative response). The products are subject to the same influences as professional tests.

Home testing products are used by individuals who generally have limited knowledge about them. Label instructions are basically complete, but often difficult to comprehend.

It is common for tests to be accurate 95 to 98 percent of the time if the users are counseled on the correct use. Making sure that consumers use these products correctly is the precise role of the pharmacist.

OTC Urinalysis Testing

Urine Collection. The proper collection procedure for obtaining a urine sample is one of the most important aspects of urinalysis. Pharmacists should be sure that individuals who self-test their urine understand the procedures, and follow them correctly. Urine samples that are carelessly collected or stored cannot be expected to provide a high degree of reliability.

There are several urine sampling techniques that consumers may be directed to follow. A **clean-catch specimen** is a midstream catch obtained in a container which is clean and free of microorganisms, after the external genitalia are carefully cleansed.

A **fasting specimen** is the second sample that is collected at least four hours after a meal. A **first morning specimen** is one that is voided on arising in the morning. A **midstream specimen** is collected by passing a container into the urine stream approximately one-half way through the voiding process.

The **moisten-in urine stream** is ideal for tapes or strips. The product is held in the urine stream after some urine is voided. A **random specimen** is collected anytime during the day or night. And, a **twenty-four hour specimen** is a collection of all urine voided over the 24

hours beginning after a first morning void.

The condition of the collection container is extremely important for all tests that use urine as the medium. It must be clean and free of contamination. Ideally, it will be disposable. If disposable equipment is not available, the container should be washed, rinsed well, and carefully dried before each use.

Consumers should be reminded to collect urine specimens at the recommended time for analysis. If the individual cannot test the sample until noon, it may be unwise to collect it at 8:00 a.m. An exception is when the test specifically directs that a first morning sample be obtained, e.g., a pregnancy test. Since a diurnal or rhythmic variation in many urinary constituents is noted over the day, it is important that all patients who do routine urinalysis perform the tests at the same time each day.

Tests For Urinary Tract Infection

Turbidity and foul odor of urine have been associated with illness for centuries. However, it was not until the mid-19th century that these were correlated with bacteria. More recently, easy-to-use tests have been developed to detect the presence of bacteria in urine.

Freshly formed urine is normally sterile since it is a direct filtrate of blood. However, it may contain a modest number of bacteria upon voiding. Abnormally high bacteria levels in urine (bacteriuria) are associated with a positive diagnosis of urinary tract infections (UTIs). The most common pathogens are gram-negative organisms of the *Escherichia coli* group. Infections of the urinary tract are the most prevalent of all human bacterial infections.

Most UTIs occur from movement of bacteria into the bladder and kidneys from outside the body. In other words, bacteria enter the external genitalia and proceed upward along the urethra into the bladder. They then may enter the ureters to reach the kidneys. In other cases, UTIs are caused by the spread of bacteria from other organs or tissue via the blood. In these instances, bacteria are filtered through the kidneys to be excreted through the urine. Bacterial endocarditis is an example of such a disease process.

A diagnostic test for urinary tract infections is called Microstix-Nitrite. The product uses

strips which detect nitrites in urine. Detection depends upon bacterial conversion of nitrates from dietary metabolites to nitrites in the bladder. A midstream sample of first morning urine is obtained while being careful not to contaminate the collection container. A test strip is dipped into the urine. Any nitrite present will react with p-arsanilic acid on the test strip to form a diazonium compound which in turn reacts with N-(1-naphthyl)-ethylenediamine from the strip to form a pink color within 30 seconds. Detection of nitrites implies, but does not substantiate, the presence of bacteria. The test is neither qualitative nor quantitative.

A proper method of using the product is to begin testing urine on the first day after completing therapy for UTI, then continue testing for two more days. If the strip is negative on three consecutive first-morning urine samples and the individual does not complain of symptoms of infection, therapy is considered successful and the infection cured. If one or more of the three tests shows a positive response, the test should be regarded as positive for infection. Therapy should then be continued as directed by the physician.

Any degree of color change is interpreted as a positive reaction since the urine contains a million or more organisms per milliliter. A negative reading, however, does not rule out bacteriuria. Some UTIs are caused by pathogens that do not convert nitrates into nitrites, and, therefore, they do not test positive.

Microstix-Nitrite is reported to detect Gram-negative bacteria approximately 94 percent of the time when testing for three consecutive days gives positive readings. This assumes that urine has incubated in the bladder overnight. Testing should therefore be done on a first-morning specimen.

A couple items can cause false-positive test results. As little as 250 mg ascorbic acid taken within 10 hours of the test can reportedly reduce sufficient urinary nitrate to nitrite. The urinary analgesic phenazopyridine (e.g., Pyridium) can impart a red-pink color to the urine which can be interpreted as a positive test result.

As a side note, but still of some interest, a pharmacy professor once asked his students on a midterm exam to "Tell me what you know about nitrates." One student reportedly answered, "They're cheaper than day rates!"

Other Tests

In addition to tests and test products discussed in this lesson, there are many others that use urine samples. Table 1 lists a representative group of these products.

Calcium. Urinary calcium can be readily detected with the product Urine Calcium Screening Test. The test is valuable to individuals, such as premenopausal women, who wish to be sure that calcium ingestion is adequate. A test result of 100 to 250 mg calcium per deciliter urine means that ingestion is adequate.

Sodium. Persons with hypertension and other diseases of the cardiovascular system are often placed on low salt (sodium) diets. A home testing product called Saltext permits these persons to monitor salt intake. Dietary ingestion can be easily and reliably determined with this product.

Sulfite. A reagent strip called Sulfi-test is used to test for the presence of sulfites in foods and beverages. Touching the product to the food or product identifies whether or not sulfites are present. There are an estimated 0.5 to 1 million asthmatic Americans who are sensitive to sulfite agents.

The Future of Home Testing Products

Currently marketed home testing products represent only the tip of the iceberg. Their future growth seems unlimited! For example, small micro-processor chips contained in disposable, compact units are reported to be in the developmental stage. A typical unit consists of such a chip, along with a single-use battery and light bulbs. A throat swab would be placed in an incubation tube within the unit. After a prescribed interval, the unit would respond via blinking light to indicate whether a streptococcal infection was present. The patient could then decide whether or not to seek treatment.

Monoclonal antibody technology will certainly continue to develop. While an in-depth discussion of the topic is beyond the scope of this lesson, one of the most significant developments in immunodiagnostic chemistry has been the ability to manufacture monoclonal antibodies. Through gene-splitting techniques, it is now possible to produce a limitless supply of these hybrid cells which are designed to recognize individual chemical substances.

Table 1
Representative Examples of Home Testing Products

GLUCOSE, BLOOD

Chemstrip bG	Boehringer Mannheim
Dextrostix	Ames
GlucoScan	LifeScan
Glucostix	Ames
Visidex II	Ames

MISCELLANEOUS

Ictotest	Ames	Bilirubin
Microstix-Nitrite	Ames	Bacteriuria
MPS Papers	Ames	Mucopolysaccharides
Nitrazine Papers	Squibb	pH
Phenistix	Ames	Phenylketonuria
Sulfitest	Center Labs	Sulfites
Urine Calcium	Preventa/Pak	Calcium
Screening Test		
Urobilistix	Ames	Urobilinogen

OCCULT BLOOD

CS-T	Helena Labs
Early Detecatest	Fleet
EZ-Detect	NMS
Fleet Detecatest	Fleet
Hemocult II	Smith Kline

OVULATION

Clearplan	VLI
OvuSTICK	Monoclonal Antibodies
First Response	Tambrands
Fortel Ovulation Test	NMS

PREGNANCY

Advance Test	Advanced Care
Answer	Carter
C&T	Healthcheck Corp
Clearblue	VLI
Daisy 2	Advanced Care
e.p.t. Plus	Warner-Lambert
First Response	Tambrands

Their importance in home testing procedures is that they are extremely selective and accurate, and detect small quantities of substances that cannot currently be identified by other means. This has stimulated development of tests that are not only easy to perform, but also give reliable and reproducible results.

It is estimated that over 200 such test kits are

already used in clinical labs. Laboratory tests that are currently available only for professional use may eventually be approved for home use.

Some include tests for common sexually transmitted diseases such as *Chlamydia trachomatis* and herpes simplex viruses, and tests for detecting various cancers of the breast,

colon, lung, and prostate. They also include tests for determining blood levels of drugs that have a narrow therapeutic index, such as digoxin, theophylline and anticonvulsants. Using these tests at home would enable persons on chronic drug therapy to monitor drug levels and modulate dosage as needed.

Other promising products test for ethanol, vitamins and minerals, and other nutrients. Tests for substances of abuse, such as marijuana and cocaine, are also being developed. One test, called Aware (American Drug Screens, Inc.), permits parents to check their children's urine for these and other chemical substances. Similar easy-to-use tests for leukemia, kidney disease, hepatitis, and glaucoma are also reported to be in various stages of development.

Test for the AIDS Virus

At least two products have been developed that test for the HIV (AIDS virus) antibody. They involve obtaining a blood sample on a filter paper via finger prick, then sending it through the mail to a laboratory that would analyze it and report results back to the sender. Their manufacturers, and some consumers, have appealed to FDA for approval to market them for home use. The agency is studying the request.

There are at least three fundamental issues reportedly delaying a decision. The first is that there is considerable public and professional sentiment against sending blood samples through the mail. Second, opponents of home testing products declare that consumers cannot accurately perform the test. The ramifications of a false-negative test result could be deadly. Third, there is fear that if the result is positive, the individual might not receive proper counseling and follow-up treatment.

There is, for now, probably little chance that home testing products for AIDS will be approved. Rather, the tests will be restricted to use by health care professionals.

Home Cholesterol Testing. There is a definite market need for a do-it-yourself test for blood cholesterol. So far, none are available, and none appear to be in development for use in the immediate future. One market analyst estimated availability by 1992 or later. Others, however, state that such tests are close to development.

The future looks bright. As the experts on these products and the most respected and accessible health care professional, pharmacists are in an advantage position. We can inform the public about these products, and take full advantage of the many opportunities this burgeoning market/health care concept offers.

Pharmacists can recommend home testing products with confidence. The products give reliable results when testing is performed correctly. In addition to specific directions for use on product labels, most need further clarification. Consumers should, therefore, be instructed on their proper use. They should also be made aware of the products' limitations.

Pharmacists who agree with the concept of home testing and envision future expansion as a great opportunity may want to act now. To take advantage of it, it is important to plan strategy now! As nonpharmacy outlets continue to expand promotion and sales of home testing products, pharmacy sales will continue to decrease proportionately. What was near a 100 percent market share in 1984 had declined to 75 percent by spring 1988. Pharmacy's share may be even less today. There is a fundamental strategy for retaining what is left, and regaining at least part of that which has been lost. That is, for pharmacists to inform consumers that they are willing and able to supply a full line of the products, and more importantly, to provide one-on-one counseling.

One way to provide such counseling is to start a file of articles such as this. Manufacturers can supply pamphlets and brochures on their products. Product advertisements containing illustrations on how to use the tests are also useful in counseling.

A word of caution needs to be stated. It should not be inferred to consumers that the result of any home test is diagnostic for a particular condition or event. Rather, consumers should understand that results are only that—results of a test. They should be conveyed to a physician who can then make a diagnosis.

The time is right to get more involved in the marketing of home testing products. Good marketing includes providing a full line of products, and counseling consumers on their correct use.

Table 2
Summary of Important Points in Using Home Testing Products*

For test kits that contain chemicals, note the expiration date of testing products. Beyond that date, chemicals may lose potency and affect results. Don't buy or use a test kit if the date is past.

Consider whether the product needs protection from heat or cold. If so, don't leave it in the car trunk or by a sunny window. Follow all storage directions.

Study the package insert. First, read it thoroughly to get a general idea of the test. Then, go back and really study the instructions and pictures until you fully understand each step.

If something isn't clear, don't guess. Consult a pharmacist or other health professional. Or, check the labeling for the company's toll-free "800" number.

Learn what the test is intended to do, and what its limitations are. Remember, the tests are not 100 percent accurate.

If color is a part of the test and you're color-blind, be sure someone who can discern color helps you interpret the results.

Note special precautions, such as avoiding physical activity or certain foods and drugs before testing.

Follow instructions exactly, including the specimen collection process, if that is a part of the test. Sequence is important. Don't skip a step. If a step to validate the test or calibrate an instrument is included, do it.

When collecting a urine specimen — unless you use a container from a kit — wash the container thoroughly and rinse out all traces of soap, preferably with distilled water, which is generally purer than tap or other bottled water.

When a step is timed, be precise. Use a stopwatch or a watch with a second hand.

Note what you should do if the results are positive, negative, or unclear.

Keep accurate records of results.

As with medication, keep test kits that contain chemicals out of the reach of children. Promptly discard used test materials as directed.

*From: FDA Consumer, February, 1986

Table 2 summarizes important points for consumers who use home testing products. •

CORRESPONDENCE COURSE QUIZ

Home Testing Products: Part II

1. All of the following statements are true EXCEPT:

- a. freshly formed urine is normally sterile.
- b. the most common urinary tract pathogen is *E. coli*.
- c. most UTIs occur from movement of bacteria from the blood into the bladder.
- d. normally, urine may contain a modest number of bacteria upon voiding.

2. When counseling consumers on the proper use of OTC home testing products they should be told all of the following points EXCEPT:

- a. be sure to follow directions and understand how to use the product.
- b. if timing is important, use a stop watch or a watch that measures seconds.
- c. make sure all utensils are clean and properly rinsed.
- d. you can be sure of the results of the test because they are 100 percent accurate.

3. The urine sampling technique that involves collecting a sample midstream is best described as the:

- a. basin-catch.
- b. clean-catch.
- c. random-catch.
- d. sterile-catch.

4. The definition that is most synonymous with diurnal is:

- a. "caused by a diuretic."
- b. "collected over 24 hours."
- c. "rhythmic variation."
- d. "using two urinals."

5. The basis of the home diagnostic test for urinary tract infections is the detection of which of the following in urine?

- a. Dead bacteria
- b. Live bacteria
- c. Nitrites
- d. Sulfites

6. To maximize an accurate reading of a home pregnancy test, the woman should obtain a:

- a. fasting urine sample.
- b. first morning urine sample.
- c. random urine sample.
- d. twenty-four hour urine sample.

7. FDA is studying approval of home test kits for AIDS. This article presented three fundamental issues that have, at the time of its publication, delayed a decision. These issues involve all of the following EXCEPT:

- a. sentiment against sending blood samples through the mail.
- b. concern that those handling the sample would be infected by the HIV organism.
- c. fear that if the result is positive, the individual may not receive proper counseling and follow-up treatment.
- d. inability of the consumer to accurately perform the test.

8. In the article, the home testing product that may become available for detecting sexually transmitted diseases (besides AIDS) was for:

- a. chlamydia.
- b. gonorrhea.
- c. syphilis.
- d. trichomonas.



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9. Relatively high doses of which of the following vitamins have reportedly caused a false-positive UTI test result?

- a. Ascorbic acid
- b. Folic acid
- c. Pantothenic acid
- d. Pyridoxine

10. Which of the following statements best describes a fasting urine specimen?

- a. The first sample collected immediately after a meal
- b. The second sample collected immediately after a meal
- c. The first sample collected at least four hours after a meal
- d. The second sample collected at least four hours after a meal

WELCOME, NEW MEMBERS!

The following pharmacists have become members of the NCPHA since the publication of our last journal issue. They join more than 2,600 colleagues in the Association who are committed to advancing pharmacy in North Carolina.

Melanie George, Roanoke, VA

Kathleen Gibson, Chapel Hill

Russ Abernathy, Boone

G. Terry Thomas, Southern Pines

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Home Testing Products: Part II

- Attach a mailing label from The Carolina Journal of Pharmacy or print your name and address and mail to: CE Test, NCPHA, P.O. Box 151, Chapel Hill NC 27514.
- Completed answer sheets may be returned on a monthly or less frequent basis for grading.
- **This is a member service. Non-member tests will not be graded nor CPE credit hours given.**
- NCPHA will maintain a copy of your completed CPE tests and upon successful completion of each program, will issue a certificate for one (1) hour of Board-approved CPE credit.
- If more than two (2) questions are answered incorrectly, the test is failed. You will be given one (1) opportunity to submit a second answer sheet.

Please circle correct answer

- 1. a b c d
- 2. a b c d
- 3. a b c d

- 4. a b c d
- 5. a b c d
- 6. a b c d

- 7. a b c d
- 8. a b c d
- 9. a b c d
- 10. a b c d

Evaluation of material: Excellent Good Fair Poor

Name _____

Address _____



This column features news briefs about people and events related to pharmacy around the state. The NCPHA staff welcomes your comments and any contributions you wish to make to this column. Photos (black and white) are also welcome. Send us your news!

Awards, Honors, Citations

Tim Bratton of Plymouth was named Rite Aid Pharmacy Supervisor of the Year at the company's annual Management Seminar and Trade Show. Chosen from over 100 Rite Aid pharmacy supervisors, Bratton, received a commemorative plaque and an all-expense paid Caribbean cruise for two. His achievements include exemplary performance in the areas of sales, inventory control, and personnel development. Bratton, a 1984 UNC School of Pharmacy graduate oversees operations in 20 Rite Aid pharmacies in eastern North Carolina. He joined Rite Aid in 1985 and was promoted to supervisor in 1988.

M. Keith Fearing Jr. of Manteo received a plaque from the Morehead Foundation for his 37 years of service on the local selection committee for the prestigious four-year Morehead scholarship at the UNC-CH. Fearing has served on the scholarship committee since its inception in 1953. He has also served on the regional scholarship committee.

Russ Mitchell of Eden received a plaque of appreciation for continual support of Best Friends of Rockingham County. The award was presented by the local director of the United Way agency.

Burke Pharmacy in Morganton, owned by **Howard "Butch" Duckworth**, was listed in the September issue of *Drug Topics* magazine, as one of the top ten most aggressive and successful drugs stores in the U.S.

Births

Dennis and **Sherry Holloman** announce the birth of their son, Clifton Ray, born August 24. Clifton weighed 9 lbs., 8 oz., and was 21-1/2 inches long. Mrs. Holloman is the former Sherry Creech and is a 1986 graduate of the UNC School of Pharmacy. She is employed by Johnston Memorial Hospital in Smithfield, NC.

Bonner and **Robin Latham** announce the birth of their first child, Kathryn Margaret, on July 2. She weighed 7 lbs., 2 oz. Robin is a 1986 graduate of the UNC School of Pharmacy. She is employed by Hollowell's Drug Store in Greenville.

Lisa and **Jan Childress** of Sanford announce the arrival of Kayleigh Maria born August 6. She weighed 9 lbs., 5 oz. Jan is a 1978 UNC-CH School of Pharmacy graduate and received a M.S. in Pharmacy Practice from the UNC-CH School of Pharmacy in 1981.

Weddings

Susan Renee Nixon and Phillip Edward Smith, both of Edenton, were united in marriage August 12 at Rocky Hock Baptist Church. The bride works as a pharmacist in Edenton.

Michelle Lynn Mackie and **John Christopher Kirby** were united in marriage September 8 at the First United Methodist Church in an impressive ceremony reflecting their Scottish heritage. Both graduated from the University of South Carolina School of Pharmacy. The couple has made their home in Morganton.

Cindy S. Sutton and **Michael Shaw Kennedy** were married on August 18 at First Presbyterian Church in Statesville. The groom is a UNC-CH School of Pharmacy graduate; his bride is a USC School of Pharmacy graduate. Both are pharmacists for Revco in Statesville. The couple resides in Statesville.

Kimberly Anne Carpenter and **Nathan Eugene Roberson** pledged their marriage vows on September 15 at Our Saviour Lutheran Church in Southern Pines. Mr. Roberson is a 1984 graduate of the UNC School of Pharmacy. He is employed by Revco in Burlington.

Mary Morris Fonville and **Harry Lee Brogden Jr.** were married on August 11. A graduate of UNC School of Pharmacy, the groom is a pharmacist with Eckerd Drugs in Charlotte. The couple resides in Charlotte.



Henry L. Smith of Farmville was honored as a 1990-91 Distinguished Alumnus of Campbell University on October 6 as part of the school's fall homecoming events. He is pictured with his wife, Tracey. The events of the day included a President's Reception, award presentation, luncheon, and a football game, of course!

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Appointments

Dr. Ronald W. Maddox, dean of Campbell University School of Pharmacy, has been chosen as Chairman of Deans of Private Colleges of Pharmacy of the American Association of Colleges of Pharmacy. The private schools of pharmacy make up 20 of the 74 schools of pharmacy in the U.S. As Chairman of Deans, Dr. Maddox is responsible for the coordination of the private schools activities at the American Association of Colleges of Pharmacy Annual Meeting and the Council of Deans Annual Meeting.

Albert F. Lockamy Jr. of Raleigh has been reappointed by Governor James Martin to serve on the N.C. Medical Care Commission.

Tom Wagner of Pittsboro has been named to the state's Low Level Radioactive Waste Management Authority by the Chatham County commissioners. Wagner has a masters and doctorate degree in radiation biology and has done extensive work in the field of radiation.

In The News

Moss Drug, located at 701 W. Franklin Blvd. in Gastonia, is celebrating its 50th year in business. Owner, **Fred Moss Jr.**, has worked at the drug store for 28 of those years. His father, Fred Moss Sr., acquired the store in 1940. The store serves the greater Gaston area.

W.K. "Hooty" Lewis of Mt. Olive filled his 1.5 millionth prescription at his store, Lewis Drug, on August 24. Lewis has been a pharmacist for 50 years in the same drug store that his father, the late Wilson E. Lewis, operated.

Deaths

Lucy Alderman Sutton, wife of the late **James L. Sutton**, owner of Sutton's Drug Store in Chapel Hill, died September 26 at the age of 96 years. Mrs. Sutton had been active in the NCPHA Woman's Auxiliary and the Chapel Hill Woman's Pharmaceutical Auxiliary. She was also active in community affairs and was a member of Altrusa International.

Samuel Jimmy Brown, 79, died August 17 at his home in Gastonia. He was an employee of Caldwell's Drug Store until 1949 when he purchased it. He was a former partner in Brown-Medlin Drug Store.

Marvin L. Davis Sr., retired pharmacist of Elm City Pharmacy, died on September 28. Davis, a 1934 graduate of UNC School of Pharmacy, became the owner of Elm City Pharmacy in 1944. He was a member of NARD and president of Elm City Rotary Club in 1947-48.

Edward A. Brecht, Chapel Hill, former dean of the UNC School of Pharmacy, died October 29 after several months of declining health. He was 79 years old. Brecht was a graduate of the University of Minnesota, where he earned his B.S. in Pharmacy, M.S. and Ph.D. He came to Chapel Hill in 1939 as an instructor in the School of Pharmacy and was appointed dean in 1950. He left UNC in 1965 after 15 years as dean and moved to Monroe, LA where he taught in the Northeast Louisiana School of Pharmacy and Allied Health as professor of pharmacy.



Brecht received the UNC School of Pharmacy Distinguished Service Award in 1978, for outstanding contributions to teaching, research and service to the school. He was one of the founders of the Pharmacy Foundation of North Carolina and served as its secretary for the first 19 years. He was a nationally recognized authority on pharmaceutical technology and authored numerous articles and papers. He served for many years on the National Formulary Committee which revised one of the two official compendia of pharmacy. He was a co-author of *American Pharmacy* and Scoville's *Art of Compounding*. He was a member of many professional organizations including the American Pharmaceutical Association which he served as Chairman of the Committee on the *U.S. Pharmacopoeia*, pharmacy's other official compendium and the North Carolina Pharmaceutical Association.

Brecht is survived by his sister Dorothy Brecht and a brother Charles Brecht, both of Mesa, Arizona.

Contributions may be sent to the newly established **Edward A. Brecht Memorial Student Loan Fund** administered by the **North Carolina Pharmaceutical Association**, P.O. Box 151, Chapel Hill 27516. •



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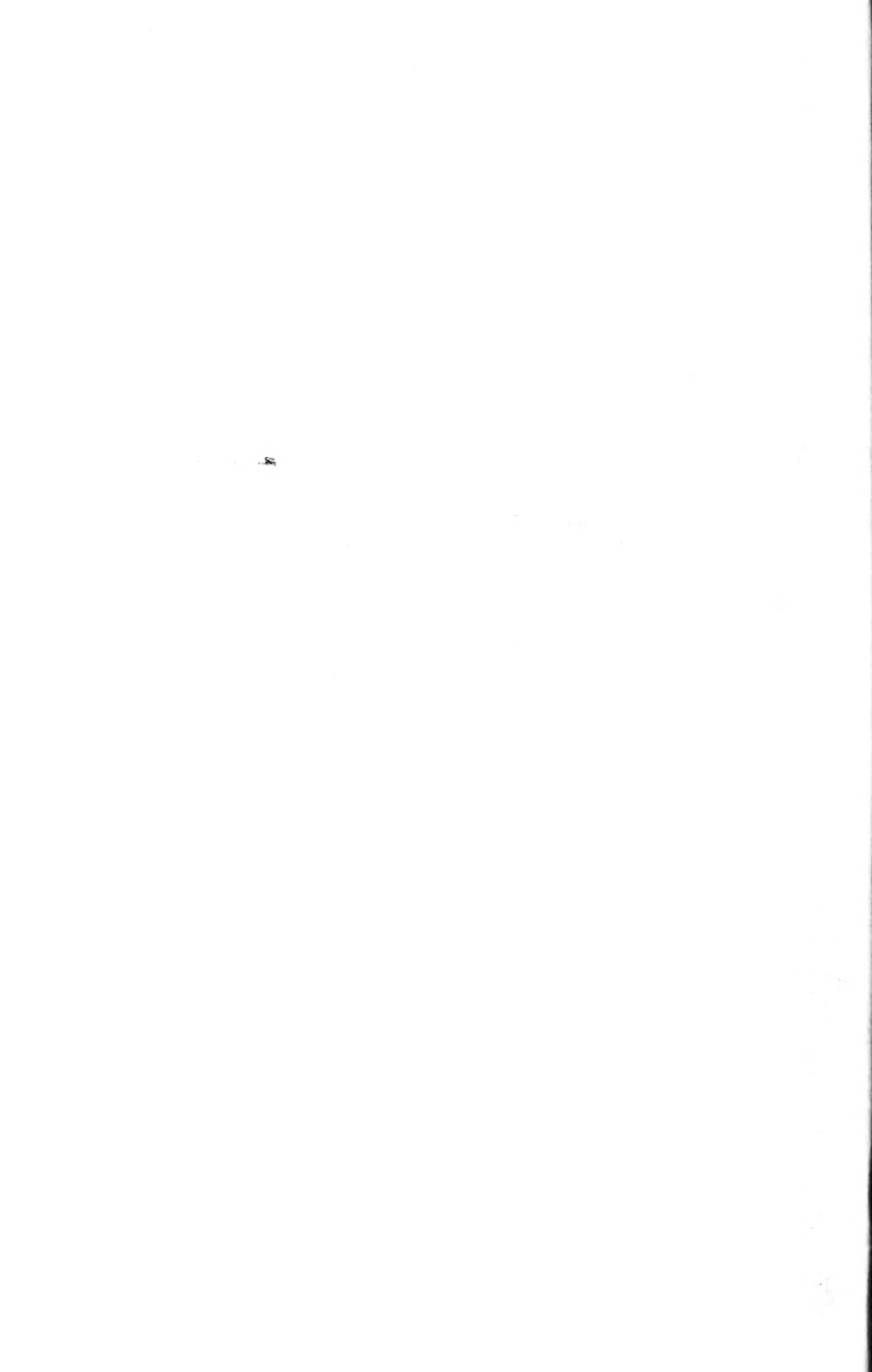
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